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GLEANINGS

IN BEE CULTURE



THE A. I. ROOT CO.
MEDINA, OHIO.

Western Edition

Entered at the Postoffice Medina, Ohio, as Second-class Matter

North Texas Beekeepers

will find Dallas the best point from which to purchase supplies. We have a carload of ROOT'S GOODS in stock, and sell them at Factory Prices. Don't forget that we can furnish anything in the way of field or garden seeds, plants, and poultry supplies. Large illustrated catalog for 1906 free on application. Mention *Gleanings* when you write. Wish to purchase Beeswax.

**Texas
Seed and Floral Co.
Dallas, Tex.**

SPRINGFIELD MISSOURI

We carry a
large and complete stock of

The ROOT'S 1906 BEE-SUPPLIES

All orders filled same day as received, thus insuring for our customers quick service, Springfield freight rates,

FACTORY PRICES

Send for seed catalog, bulb and plant catalog, Cyphers incubator catalog, The A. I. Root Co. bee-supply catalog

**SPRINGFIELD SEED CO.
Springfield, Mo.**

MR. TEXAS BEE-KEEPER

I would like to talk to you *personally*.

First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's *better* in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you supplies with the utmost promptness.

Then, too, I have installed a complete Weed-Process Foundation factory. I can turn out 500 lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the quality of the goods. It will save you dollars to get my prices. Better write for them to-day.

Nothing pleases me better than for bee-keepers to make their headquarters at my office when at San Antonio. You are *always* welcome. I have fitted up my office with plenty of desks and chairs, with writing material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

After the 15th or 20th of April I can supply Red-clover and Golden Italian queens promptly.

I am now paying 25c cash and 28c in trade for average clean beeswax delivered here.

Call or Address

Udo Toepperwein - San Antonio, Texas

1322 South Flores Street

C. H. W. Weber,

Headquarters for

Bee - Supplies.

Distributor of Root's Goods Exclusively, at Root's Factory Prices.

Give me your order for the BEST GOODS MADE. You will be pleased on receipt of them. You will SAVE MONEY by ordering from me. My stock is complete; in fact, I keep EVERY THING the BEE-KEEPER needs. CINCINNATI is one of the best SHIPPING-POINTS in the Union, PARTICULARLY IN THE SOUTH, as all freight now GOES THROUGH CINCINNATI. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly FREE of charge.

I will buy your HONEY AND BEESWAX. I pay CASH ON DELIVERY; or, if you are in NEED OF HONEY, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of EXTRACTED or COMB HONEY. I guarantee its purity.

QUEENS AND NUCLEI.

Let me book your order for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, CARNIOLANS, and CAUCASIANS. Can furnish NUCLEI beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel, stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

ST. LOUIS.—There is no change in our honey business. The market drags along slowly at quotations same as last. We quote fancy white comb honey, 13 to 14; No. 1 at 12 to 13; amber, nominal at 11 to 12; there is, however, none of the latter description on the market. Extracted California light amber, 6 to 6½; Spanish needle, 6½ to 7; Southern, in barrels, 4¼ to 4½; in cases, 5 to 5½. Beeswax, 30 to 30½.

R. HARTMANN & Co.,

April 10. 14 So. Second St., St. Louis, Mo.

CINCINNATI.—There is no material change in the honey market since our last report. The demand does not come up to expectations, which, in all probability, is due to the inclement weather of the past month. Continue to quote amber in barrels at 5¼ to 6½. Fancy white extracted, in crates of two 60-lb. cans, at 6½ to 8½. For choice yellow beeswax we are paying 30 cts. per lb. delivered here.

THE FRED W. MUTH CO.,
51 Walnut St., Cincinnati, O.

SCHENECTADY.—Notwithstanding the lateness of the season there is still a very good demand for honey, and we look for a continuance of the same until after Easter. No change of note since our last quotations.

CHAS. McCULLOCH,
Schenectady, N. Y.

April 9.

KANSAS CITY.—The honey market is considerable firmer, and stocks are getting low. We are quoting fancy white at \$3.35 per case; amber and off grades sell at 25 to 30 cts. per case less; extracted, 6 to 6½.

April 9 C. C. CLEMONS & Co., Kansas City, Mo.

CHICAGO.—The best grades of comb honey are scarce, and sell at 15 cts. per lb; off lots are of uncertain value, ranging in price from 10 to 14. Extracted meets with fair sale at 6½ to 7 for white, and 6 to 6½ for amber, with off flavors 1 ct. less. Beeswax sells at 30 cts. on arrival.

April 7. R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

BOSTON.—New honey is practically closed out with a good demand, fancy white bringing 16. There is still quite a large stock of old, which is moving extremely slow. Strained honey brings from 6½ to 7½.

BLAKE, SCOTT & LEE Co.,

31-33 Commercial St., Boston, Mass.

April 7.

ATLANTA.—Honey market is at a standstill with us, and there will be very little doing till the new crop begins to move. We quote: Fancy white, 12½ to 14; No. 1, 10 to 11. Beeswax firm at 30 for No. 1 stock.

JUDSON HEARD & Co.,
Atlanta, Ga.

April 10.

PHILADELPHIA.—The call for honey is falling off; while the supply is not abundant, yet it equals the demand. We quote: Fancy white comb, 16 to 17; amber, 13 to 14; white-clover extracted, 7 to 8. Beeswax, 28. We are producers of honey, and do not handle on commission.

WM. A. SELSER,

April 9 10 Vine St., Philadelphia, Pa.

BUFFALO.—Honey is all cleaned up in our market. There has been an advance and a very good demand at the advanced price. It is scarce in the country, and we think it will stay high until next crop is ready for market. We quote: No. 1 to fancy white comb, 15 to 16; No. 2, white comb, 12 to 13; No. 1 buckwheat, comb, 12 to 13; No. 2 buckwheat, comb, 11 to 12; white-clover extracted, 8½ to 9; amber extracted, 7 to 7½; dark extracted, 6 to 7. Beeswax, 30 to 32.

W. C. TOWNSEND,
Buffalo, N. Y.

April 10.

TOLEDO.—The market on comb honey at the present time is very hard to give, as no one has any honey to quote prices on. Fancy comb would bring very readily 16; No. 1, 15; and almost anything, 14. Extracted in barrels is at a premium. No one has any to offer. Beeswax is firm at 28 to 30.

GRIGGS BROS.,

April 9. 521 Monroe St. Toledo, Ohio.

NEW YORK.—Demand for comb honey is fair, especially for the better grades, and fancy white is selling at from 14 to 15; No. 1 at 13; light amber at 11 to 12. No more demand for dark comb honey. Extracted is in good demand, mostly California, at unchanged prices. Beeswax is firm at 29 to 31, according to quality.

HILDRETH & SEGELKEN,
82 Murray St., New York.

April 10

FOR SALE.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.

O. L. HERSHISER, 301 Huntington Av., Buffalo, N. Y.

FOR SALE.—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.

HILDRETH & SEGELKEN, 82 Murray St., N. Y. City.

BEE SUPPLIES.

We handle the finest bee supplies, made by the W. T. FALCONER MFG. CO., Jamestown, N. Y. Big Discounts on early orders, let us figure with you on your wants.

MUTH SPECIAL DOVE TAIL HIVES, have a honey board, warp-proof cover, and bottom board, think of it, same price as the regular styles. Send for Catalog.

THE FRED W. MUTH CO.,

51 WALNUT ST.,

CINCINNATI, OHIO.

FOR SALE.—Thirty 5 gallon cans of clover honey. Single can, 7½ cts. per lb.; two or more at 7 cts.
C. J. BALDRIDGE, Homestead Farm, Kendala, N. Y.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT,
199 South Water St., Chicago, Ill.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here.
GRIGGS BROS., Toledo, Ohio.

WANTED.—Comb and extracted honey. State quality, quantity, and price.
JUDSON HEARD & Co., Atlanta, Ga.

WANTED.—Carlot or less quantity of fancy comb honey, also extracted basswood or white clover.
E. R. PAHL & Co.,
Broadway and Detroit St., Milwaukee, Wis.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.
EVANS & TURNER, Columbus, Ohio.

WANTED.—A case of two 60-lb. cans extracted honey (1906 crop) of each variety or source from every State in the U. S.; also from Canada, Mexico, West Indies, and other accessible countries. With each lot is required a certificate guaranteeing absolute purity of the honey, and gathered from the source named. Exceptional care must be taken to have the honey well ripened, of good representative color from source named. The honey should be extracted from clean new combs free from pollen. An extra price of about 2 cts. per pound will be paid for such honey, or we will arrange, if desired by any, to supply those co-operating and furnishing sample shipments, with ¼-lb. samples of each variety secured, labeled with name of producer, year, and source of honey. We expect to secure at least sixty varieties of American and foreign honeys. Do not ship, but advise us what you can furnish, and on what basis.
THE A. I. ROOT CO., Medina, Ohio.



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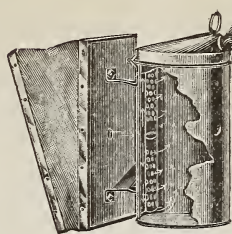
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The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A COLD MEDAL
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St. Louis, 1904



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STRONGEST,
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CLEANEST.

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool adding to its durability. It has no valves to get out of order or snout to clog with soot.

Every Thing Guaranteed "Root Quality."

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best. N. E. FRANCE, Platteville, Wis.

SURPASSES ALL OTHERS.—"After giving the Danzenbaker Twentieth Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until fuel all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker."
Grant Stanley, Nisbet, Pa.

Prices: By mail, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

For further particulars, see Dec. 15th Gleanings, page 1370; sent free with price list.

F. DANZENBAKER, MIAMI, FLORIDA

\$500.00 FOR SHORT STORIES

This is the sum a Chicago young woman received last month from various publishers. A few years ago she was a schoolteacher. She loved to write, and was determined to succeed. She went at it systematically as she would any other calling. **SHE LEARNED HOW TO WRITE AND SHE LEARNED THE MARKET.** Naturally she has succeeded.

If you have a taste for writing and want a good income, easily earned, we will tell you how to develop this taste so that it will bring the income. We offer you no theory—nothing but facts, and the most severe criticism and personal individual help on your own stories. Your critic recently received **\$250 FOR ONE STORY.** You can do as well. There is a big market—stories are in demand. We will prepare you to write the kind that publishers want. As we can take only a limited number of promising pupils, write at once, and **SEND ONE OF YOUR STORIES** if you wish, with stamps for its return. We will tell you what we think of it—and all about our plan. Address

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Dept. 383, 90 Wabash Ave., Chicago, Ill.

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

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A. I. ROOT
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A Non-swarming Hive

has been talked about, pooh-poohed, and the idea abandoned, but Mr. L. A. Aspinwall, of Jackson, Mich., has had one in successful use for a dozen years or more, with perhaps 50 colonies, getting big crops of comb honey, yet having no swarms. There was one drawback that was hard to overcome, and that was the tendency of the bees to store pollen in the sections; but this has now been overcome in a manner most novel, and unexpected advantages gained thereby. This hive was men-

tioned editorially in GLEANINGS for Feb. 15th; but, if you wish to see some beautiful engravings of the hive, showing all of the details of construction, and read Mr. Aspinwall's description, together with his methods of management, send ten cents for the March Bee-keepers' Review, and the ten cents may apply on any subscription sent in during the year.

W. Z. Hutchinson, Flint, Mich.

HERE'S YOUR CHANCE

to win a prize by doing a little work in
obtaining subscriptions for Gleanings
in our Second Subscription Contest.

Last contest EVERY contestant that sent in more than ONE subscription obtained a prize. It will doubtless be so in this contest, so that besides the regular commission you will receive a prize that will more than pay any effort made.

Twenty-five Prizes!

(Variety of queen to be winner's selection)

First Prize \$10.00 queen
Second Prize 7.50 queen
Third Prize 5.00 queen

Fourth Prize 3.00 queen
Fifth Prize 2.00 queen
6th to 15th Prize One cloth-bound A B C
16th to 25th Prizes One Junior Cornell smoker

Conditions!

FIRST.—That subscriptions to be entered in this contest are to be obtained as results of work between February 15 and July 1, 1906.

SECOND.—To be eligible to any one of the first fifteen prizes, contestant must have at least five yearly subscriptions, or their equivalents, to his credit.

THIRD.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, six months) are equivalent to one year's subscription.

FOURTH.—That subscriptions can be sent in any time, but must be plainly marked "For Second Subscription Contest."

CUT HERE

Gleanings in Bee Culture

Subscription Contest Department.

Date

GLEANINGS IN BEE CULTURE, Medina, Ohio:

Please send agents' terms and enter my name as contestant in Second Subscription Contest. Send to my address at proper time, advertising matter which will aid me in obtaining subscriptions. I have read conditions and agree to them.

Name

P. O.

I can use sample copies of Gleanings. State

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ADVERTISING TALKS

BY THE AD. MAN.

Have you noticed how our classified advertising columns are growing lately?

Here's a good way to make a start in the advertising field. The cost of inserting a small ad. in these columns, half a dozen times or more, is very small, and we know that many good sales have been made through ad's carried in this department.

Have you ever noticed this ad. in our "want" columns?

WANTED—Old books on bee culture, especially from foreign countries. Please state titles, authors, year of publication, edition, binding, condition, number of pages, and price wanted.

A. L. BOYDEN, Medina, Ohio.

Mr. Boyden has secured more than 250 old bee-books from all over the world, and through this small ad. alone.

People who have poultry or eggs for sale should be especially interested in the new "poultry offers" department.

THE JOSEPH HORNE CO., PITTSBURG, PA., have an ad. on page 527 of this issue. They make a very attractive watch offer.

We want to tell our readers something about the complete catalog which this company issues. We have just received a copy, and have been wonderfully surprised at the unlimited opportunity for shopping by mail which is offered. A copy of this new catalog should be in the home of every reader of GLEANINGS. The lady folks would be interested in the styles, dress goods, and household furnishings; the gentlemen, in the clothing, hardware, and almost innumerable other goods; and, in fact, there is something shown in this very complete book which would interest every member of the family. From our comparison of the prices quoted by this and other department stores, we find that the JOSEPH HORNE COMPANY maintains very reasonable prices. In fact, we are surprised at the low figure quoted on many articles. We are very glad indeed that it is possible for each one of our readers to secure this interesting book without charge, and surely you will not let this opportunity slip by.

If at any time you find that you are in need of a new catalog we shall be glad to hear from you. Perhaps you have never issued a price list or circular descriptive of your goods, and your business has now grown to such proportions that you feel the need of some descriptive literature. We have lately published several very satisfactory catalogs and booklets, and our clients have said some very complimentary things about our work. We are in position to help you, whether you simply want advice or whether you want a catalog complete from the writing of descriptions to the printing.

We would almost rather give our advice and suggestions free of charge than to see some of the inadequate and poorly prepared folders and catalogs which reach us from time to time. If you would like to have us criticise your literature, free of charge, send it in.

"Try an Anderton with your money in your pocket."

This is the offer made by the Anderton Manufacturing Company, manufacturers of vehicles and harness, Cincinnati, Ohio, in their ad. on page 530 of this issue of GLEANINGS. We do not know of a fairer way of advertising for business. Surely a man would soon be able to tell, after he had looked over a carriage or a set of harness, whether or not it was worth buying; and this liberal offer, made by the Anderton Manufacturing Company, makes it possible to buy vehicles and harness at a very low cost, and the risk of getting an inferior production is entirely eliminated. If people were not always satisfied when they tried the Anderton it would be impossible to make this offer. But send for an Anderton catalog—a 110-page book which explains in detail the things which can not be mentioned here. It is a book worthy of the reference of vehicle or harness buyers. A copy may be secured free by mentioning GLEANINGS.

At any time we should be glad to have our advertisers or readers advise us of sales made through GLEANINGS ad's. Every once in a while we hear of some sale, some good big one, generally, which has been made through our columns, and we like to preserve this information. Just the other day a man wrote and said that he had purchased a disc harrow from a company which advertised in GLEANINGS earlier in the year. Another man reports that he purchased a complete greenhouse from Mr. Manley.

There seems to be plenty of evidence that our readers are alive, and on the lookout for all necessary articles. One never can tell whether a paper's readers would buy his goods or not until he makes a trial advertising campaign. Almost always the results are surprisingly profitable.

For the past nine or ten months, every issue of GLEANINGS has carried the advertisement of the Savings Deposit Bank of Medina, Ohio. This institution reports that many good accounts have been opened by our readers, and we are very glad to hear this. Giving advice where to place one's money is a rather hard thing to do; and, too, the man or woman who deposits her earnings or income in a savings bank must have implicit confidence in the character of the institution. During the several years which the Savings Deposit Bank has been in existence, no question of character, capital, or reliability has ever confronted them. The aim of the management has been to eliminate all risk, and to limit the deposits to the number which can safely and conveniently be taken care of. There are many points of advantage to depositors which are in favor of a small bank like this one.

First.—The bank is in the center of a farming community. The men who make up the bank are all careful honorable men who will have nothing whatsoever to do with speculation.

Second.—Being a small bank, the individual attention given to depositors is much greater than in a larger institution.

Lastly.—The rate of interest is as good as is given by any other savings bank in the country—4 per cent, compounded semiannually.

We do not hesitate to refer our readers to the Savings Deposit Bank of Medina as a safe place to deposit their savings. We have every reason in the world to believe that this bank offers as secure a place of deposit as the largest bank or trust company in the country.

**The More You
Know About
Our Bee
Goods**

**The More You
Will Wonder
Why in the World
You Have Kept
Bees without Them.**

A large stock of Bee-keepers' Supplies are in storage at Syracuse, N. Y., for prompt shipment.

The A. I. Root Co., Syracuse, N. Y.

HIVES - HIVES



Now is the time to place your order for the hives you will need this year. By getting them now you will save the discount, and can have them nailed and ready for your bees in the spring. . . . We should like to quote you prices in any quantity on the following:

The Root Chaff Hive

The best chaff hive made

The Danzenbaker Hive

The comb-honey hive

The Root Dovetailed Hive

Standard size and extra quality



Send for Catalog

M. H. HUNT & SON, BELL BRANCH, MICH.

We Sell Root's Goods in Michigan

TRIAL TRIP OF 3 MONTHS FOR ONLY 20c.

Every reader of GLEANINGS should also have the Weekly American Bee Journal, the oldest bee-paper in America. Here is a list of the Contents of the First Number in April, 1906.

Illustrations—

An Armful of Bees.....
Bee-Hive Struck by Lightning.....
Frame-Spacing Arrangement.....

Editorial Notes and Comments—

Honey Advertising and the National Association.....
How to Provide Water for Bees.....
Need of Water for Bees.....

Miscellaneous News Items—

An Armful of Bees.....
Bee-Hive Struck by Lightning.....
National Convention.....

Contributed Special Articles—

Baby Nuclei.....
Beeswax—Origin, Composition, Adulteration, Tests, etc.....
Beginning Bee-Keeping—Good Advice.....

Cleaning Oil-Cans.....
Dadant Methods of Honey-Production (8).....
Family Apidae.....

Feeding Bees.....
Hive Colors, etc.....
Hives and Frame-Spacers.....
Home-Made Hives.....

Honey That Tickles Palates.....
Plea for a Better General Education Reading Bee-Literature.....
Shipping and Selling Section Honey Convention Proceedings—

A Non-Swarming Hive.....
Bee-Keeping—Ancient and Modern Dysentery Among Bees.....
Economy in Bee-Keeping.....

Feeding Back to Get Partly Filled Sections Completed at Close of Honey Season.....
Foul-brood Inspection.....
Harvesting of Extracted Honey.....

Management of Out-Apiaries.....
Michigan State Convention.....
Performing Bee-Men at Fairs.....
Pollen in Sections.....

Queen-Excluders.....
Races of Bees.....
Size of Sections.....
Uncapping-Machine.....

Wisconsin State Convention.....
Southern Beedom—
Attend Bee-Keepers' Conventions Invitation to the National.....

Nueces Valley Convention.....
Our Sister Bee-Keepers—
New England Sister Looks On.....
Some Intemperate Bees.....

Very Old (?) English Bees.....
Mr. Hasty's Afterthoughts—
Bees Moving Eggs or Larvæ.....
Caucasian Bees.....

Causes of Honey Flow and Suppression.....
Cutting Foundation.....
Dampening Sections.....
Growing a Quick Wind-Break.....

Sulphur for Bee-Paralysis.....
Two Queens in a Hive.....
Canadian Beedom—
How to "Sample" a Town With Honey.....

Losing Its Honey Flavor.....

Relation of Ripeness of Honey to Granulation.....
Streaky Granulation in Honey.....
Dr. Miller's Question-Box—

An Injured Finger.....
Buying Bees in the Spring.....
Changing Queens.....
Equalizing Brood Among Colonies

Extracted-Honey Retail Packages and for Storage.....
Italianizing Black Bees.....
Keeping Queens.....
Making Sections at Home.....

Mice as Honey-Eaters.....
Miller Frame.....
Number of Comb-Honey Supers Per Colony.....
Old Combs for Beeswax.....

Preventing Bees Hanging Out.....
Pure-Blood Italians.....
Rearing Queens.....
Ripening Basswood Honey.....

Several Eggs in a Cell.....
Shallow Hives.....
Stretching Comb Foundation.....
Uniting Weak Colonies.....

Ventilation Space Below Brood-Frames When Moving Bees.....
Wax-Worms and Combs.....

Reports and Experiences—
Bees Wintered Well So Far.....
Honey Scarce Last Season.....
Keeping Bees on Shares.....

Not Expecting a Great Crop.....
Season Earlier Than Usual.....
White Clover All Right.....

☞ We will send the above number and 12 others (from April 1 to June 1) as a TRIAL TRIP to a new subscriber, for 20c; or a Fine Untested Italian Queen (in May or June) with the Bee Journal a year—both for \$1.50; or a copy of the new edition of Dr. Miller's cloth-bound 352-page book, "FORTY YEARS AMONG THE BEES," with the Bee Journal a year—both for \$1.50. Sample copy of the Bee Journal free. Address

George W. York & Co., 334 Dearborn St., Chicago, Ill.

GOLDEN Opportunities!

EXIST in the South, and the Seaboard Air Line's monthly magazine will point them out to you. If you are thinking of changing your location, engaging in other business, want a winter home, a summer home, or a place for all-the-year-round residence, want an orange grove, a banana plantation, a pineapple grove—in fact, anything, and want it in Virginia, the Carolinas, Georgia, Alabama, or Florida, the magazine will assist you.

Sent free on request, together with other handsomely illustrated literature descriptive of the South and its wonderful resources and progress.

J. W. WHITE

Gen. Indus. Agt., Portsmouth, Va.

Seaboard Air Line Railway

If You Want the Bee-book

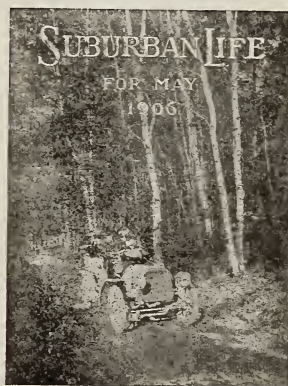
that "covers the whole apicultural field more completely than any other published," send \$1.20 to :: ::

Prof. A. J. Cook, Claremont, Calif.

— FOR HIS —

"Bee-keepers' Guide"

Liberal Discount to the Trade.



Of Interest to Every Bee-keeper

Suburban Life for May.

The leading article in the May issue of Suburban Life is entitled

"POSSIBILITIES OF MODERN BEE-KEEPING,"

By W. Z. HUTCHINSON, and illustrated with photographs by the author. This article is alone worth the price of the magazine.

52 pages of live interesting country-life material, beautifully illustrated.

\$1.00 a year; 15c a copy. Subscription price soon to be advanced to \$1.50. Address

SUBURBAN LIFE,

16 State Street,

BOSTON, MASS.

"I Will Never Make any More Goods by Hand."

—So says one of our customers, states a Lewis agent to the G. B. Lewis Co., in a letter recently received and now on file at our Watertown Office.

The Agent Writes as Follows:

G. B. Lewis Co.:—We note that the Lewis Goods this season are finer than ever. No. 2 sections are fine. Hives and all hive parts are without any knots. In fact, they are so nice that we are very much surprised, as we supposed that, as lumber gets scarcer and higher, necessarily poorer grades of lumber would have to be used. We are receiving many compliments on the goods we are shipping out. The largest producer in Michigan says, "They are the finest I have ever received." Another customer says, "Goods are so satisfactory that I want more." The purchaser of a \$165.00 order writes, "I will never make any more goods by hand; goods are fine." We wish to ask, did we get an extra good lot, and will they continue superb? Words can not express the satisfaction at seeing such stock.

Referring to the above, the G. B. Lewis Company wishes to state that the agent referred to did not get a shipment of goods from us which was picked out especially for him or any one else, but that he was shipped our regular line of goods taken from our regular enormous stock which we now have on hand, and which we are adding to every day, and which we shall continue to ship to each and every customer whoever he may be.

G. B. Lewis Company

Manufacturer of Bee - keepers' Supplies
Watertown, Wisconsin, U. S. A.

GLEANINGS

IN BEE CULTURE

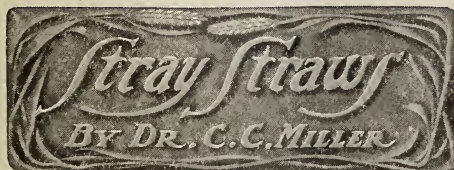


A Journal Devoted to Bees, Honey, and Home Interests
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APRIL 15, 1906.

No 8



DECIDEDLY, S. E. Miller and Louis Scholl are right, p. 417. Let it be "water-clear" rather than "water-white."

THE PICTURES of Doolittle's hives, p. 443, let it leak out that he uses cleats instead of hand-holes. I wonder if a good many others are not quietly doing the same thing. [Yes, I think so.—ED.]

I CONGRATULATE YOU BUCKEYES on your foul-brood law—not entirely certain whether that one-cent tax is the right thing, but I should be glad to pay five cents on each colony to have a compulsory law in Illinois.

A FINE PICTURE, that of G. M. Doolittle on April 1 cover. That man Doolittle makes me lots of trouble. I am obliged to read every word he writes, for fear of missing some good thing I didn't know before; and when I write any thing wrong I am always afraid he'll catch me up on it.

J. A. PHILLIPS asks, "Will bees starve to death in early spring before there is a honey-flow, but plenty of pollen?" I think so, but I don't know, because I don't know whether bees ever gather pollen without any nectar at all. I do know that I have had bees starve in winter with plenty of pollen in good condition in the hive. [Same experience here.—ED.]

QUOTH YE EDITOR concerning foundation splints, page 412, "They are too large, and yet the diameter can not be reduced." Too

large for what or whom? Not for the bees, for they use every cell the same as if no splint were there. Not for me, for I can see no difference except a slightly elevated line, and that only by very close looking. Why are they too large for you? [I had the impression that, when I visited you, the bees did not build over these splints perfectly in all cases; but "you are the doctor," and ought to know, so I will not presume to contradict your statement.—ED.]

H. F. HILLEBRANT lives in a part of Kansas where much alfalfa seed is raised. He says in *American Bee Journal*:

On one farm where no bees were kept the yield of seed, in 1905, was two bushels to the acre. On another farm, on the same bottom, one mile from the first, where only three colonies of bees were kept, the yield of alfalfa seed was between four and five bushels to the acre. On still another farm, where about twenty colonies of bees are kept, the yield was between seven and eight bushels per acre; and two miles below, without bees, the yield again dropped to two bushels.

And yet there are alfalfa-men who want the bees condemned!

I ALWAYS THOUGHT that Allen Latham was a Yankee. That searching discussion, p. 430, sounds like the work of a German. You and he, Mr. Editor, are not as far apart as you might be. Your winter entrance is 60 per cent of his minimum. But there are some things to be said about winter entrances that neither of you have said yet. [Why didn't you tell us about those other things? Yes, Mr. Latham's article is full of the science that is backed by theory and practice; but I believe he goes to the other extreme in his plea for large entrances for winter.—ED.]

CONCRETE BUILDING-BLOCKS are advertised, page 448. Why not a special block for a hive-stand? [At the rate lumber is going up, I am not sure but it would be cheaper to get up a special block for a hive-stand. It would

last a life-time, and would not cost very much either; but on account of freight every bee-keeper would have to buy his blocks in his own vicinity, or, better still, make them himself. A cheap wooden mold could be made very easily. A sack or two of cement and a load or two of gravel and sand would furnish all the material for a good-sized apiary. Thanks for the suggestion, doctor. We will experiment.—ED.]

DAILY PAPERS announce that Shurtleff, speaker of the last Illinois legislature, has "seen the handwriting on the wall and climbed into the band-wagon." In other words, he has promised the anti-saloon forces that, if they will call off their opposition to him, he will give the local-option bill a fair show in the next legislature—a thing he did not do last session. Things seem changing when a leader of the dominant party gets down on his marrow bones to the foes of the saloon. [We have been doing that thing in Ohio for the last three or four years; and the legislators have got so now they will promise almost anything if we will only keep the "dogs" off.—ED.]

"DOOLITTLE recommends putting a wet rag over the entrance to shut bees in, page 412." Doolittle has enough other things to answer for, but I think that wet-rag business originated in this locality. But it isn't needed one year in five. [The use of the wet rag depends largely on the temperature of the atmosphere when the bees are carried out. If it is nearly down to the frost-line, no rag will be needed; but if some of the bees are flying outside while the remnant are being carried out, the rag will be a good thing. From some late experience I believe we will hereafter carry out our bees after dark. Even in cool weather, when the hive is bumped the bees are liable to fly out rather promiscuously; and such as fly out are quite liable to be lost.—ED.]

A FRENCHMAN, according to *Abeille Bourguignonne*, following Root's instruction, fed his bees in a very warm place (bei grosser Hitze) with feed which had an addition of five grams of vinegar per quart, to prevent candying. After two or three days the floor of the hive was covered with innumerable dead bees. [The item doubtless refers to a statement in our catalog. It is there recommended to mix syrup cold, 50 per cent of sugar and 50 per cent of water; but for late winter feeding it is advised to make the proportion $\frac{1}{3}$ water and $\frac{2}{3}$ sugar, and then add a pint of vinegar to every 100 lbs. of syrup. As a pint is a pound the world round, that makes approximately one per cent by weight to the whole mass of syrup. I can hardly think the bees died because of the vinegar; but perhaps it would be well to eliminate the vinegar from the catalog.—ED.]

TANGLED UP AGAIN, Mr. Editor, page 412. You say A. I. Root "was trying to make the bees fly inside of a greenhouse." Look again at the Straw and you will see I wasn't talking about a hothouse but a hotbed, and, of

course, the bees were flying outside. What I meant was the thing you mention, page 414, which you call "burying colonies in manure." Wasn't that practically the same thing you are trying now? I don't want to discourage your experimenting, but no little experience has taught me that the average queen reared here before the middle of May is worthless, although she may be nice-looking and seem to lay well for a time. I don't know why, but I know the fact. I suspect it's the outdoor weather, and I do not believe your heated hive will help that. [It is true that A. I. R. was trying to make bees fly inside of a greenhouse, and he also attempted to make them fly outdoors; but you still seem to miss the *very* point that I was making—not stimulating colonies but getting *early* queens, even if we had to sacrifice a colony in so doing. We are getting queens all right; but the cold March disposed of all of our drones. Next year we will try to make some arrangement to get early drones.—ED.]

TO MY REQUEST, p. 412, Mr. Editor, that you send me a queen likely to be better than my mongrel stock, you reply by advising me to get a queen from each of five different queen-breeders. Now, that's discouraging. I supposed you could send me a queen just as good as either of those five. The redeeming feature of encouragement is that you evidently think your pure Italians are no better than my mongrels. But what makes you wander off talking about \$200 and \$5.00 queens? Mine are only one-dollar queens. But I should be glad to give \$5.00 for a better honey-getter. [There you go again. But, seriously, I have been led to expect that you were getting big results from your mongrel queen. The buying of breeding queens to get an improved stock is somewhat a matter of chance. I might send you a \$5.00 queen, and such queen might fall far short of a queen of the same value in our own yard. We have had the case of a queen that performed splendidly, yet when sent to a customer would apparently be worth little or nothing. Sometimes the journey in the mails has a disastrous effect on a fine queen a year old or old enough to be tested out. Young queens just beginning to lay do not, as a rule, receive any injury in Uncle Sam's bags. My suggestion was for you to get five queens from as many different breeders so that we could reduce the element of chance. But, doctor, I would not guarantee at \$5.00 to give you a queen that would excel or even equal the breeder that you have been developing in your yard for several years. She *might* outstrip her in honey, but you yourself could not guarantee to me that a daughter of *your* breeder would come up to the performances of her mother, for five or even ten dollars. But out of the five \$5.00 queens from five different breeders, you stand a chance of getting one queen that would equal or excel your own breeding-stock. We could send five queens from here, but your chance would be better to get one from each of five breeders.—ED.]



NEARLY 1200 new names came in during the time from March 15 to April 13. Thanks.

THERE have been quite a number of bee conventions held of late, and we are very sorry that we have been unable to get in any mention of any of them for this issue.

MR. ALEXANDER AND MRS. HOLTERMANN SERIOUSLY ILL.

It is with much regret that we have to report that Mr. E. W. Alexander, of Delanson, N. Y., is seriously ill, and he will, therefore, not be able to attend to any of his correspondence. Letters concerning his methods may be sent here, and we will turn them over to Mr. Alexander when he recovers. Fortunately we have in hand enough of his articles to run for three months yet.

We are very sorry to report also that Mrs. R. F. Holtermann has just come from the operating-table, and the surgeons found her condition such that there is little or no hope for her recovery. She is a daughter of S. T. Pettit, of Ontario, one of the best-known bee-keepers in our ranks. Mr. Holtermann is unable to take care of his correspondence at present. Those in the United States who desire to get his hives or appliances may correspond directly with us.

THE COMPARATIVE RESULTS IN WINTERING INDOORS AND OUT AT MEDINA.

We have just taken our 240 odd colonies out of our shop bee-cellar. Notwithstanding the temperature has been abnormally high by reason of the warm open winter outside, the indoor bees, strangely enough, fared much better than those outdoors; and, what is more, we put in the cellar only our very weakest and poorest colonies. Many of them were little more than two and three frame nuclei. The very best colonies were left outdoors in double-walled hives. Well, the showing is that these medium and weak colonies wintered indoors are actually in better condition than some of the outdoor-wintered colonies that were much stronger the preceding fall. Naturally enough, an open winter like this would show an advantage in favor of the outdoor bees, and this would have been the case this winter had it not been for the extremely cold March that came just at a time when bees were rearing brood and the clusters were well spread out. It appears that the shock of this cold spell put back these otherwise strong colonies that would have been stronger and better than those wintered indoors.

There were no winter losses in the cellar except some seven or eight of the very weakest and poorest that we had last fall. These would have pulled through had the cellar not been too warm much of the time.

INCREASING THE HONEY CROP BY SOWING ALSIKE, PEAVINE, AND RED CLOVER IN THE VICINITY OF THE YARD; DO IT NOW.

In March 1st issue, page 288, Mr. Wm. McEvoy, of foul-brood fame, sent in a short item to the effect that the bee-keeper could increase his honey crop materially by sowing alsike himself and getting his neighbors to do likewise. Our Canadian friend does not write very often; but when he does, he generally gives us a big chunk of something good.

Since this statement appeared I made up my mind we would test this thing here at Medina a little more thoroughly than we had ever done before. Accordingly we have been supplying the farmers roundabout here with alsike, peavine, and red-clover seed free. We prefer, of course, alsike, as it is a far better honey-plant.

This morning I had a talk with a neighbor, Mr. Vernon Burt, on this very subject, and he then reminded me that he had for years been trying to educate the farmers in his vicinity as to the value of alsike and peavine clover; and that, while he formerly furnished the seed free of charge, he found it unnecessary to do so any more, as the farmers had learned the value of these two crops. As a natural consequence Mr. Burt has a large acreage of alsike, peavine, and red clover within easy range of his bees.

Our readers will remember Mr. Burt as being a bee-keeper who secures a crop of honey if any one in our vicinity does. He attributes a large part of his success to this artificial pasturage which is now getting to be a regular thing for his bees. He has for several years been able to keep as high as 200 colonies in one locality by reason of this extra bee-pasturage when most localities in our county will support only about 50 colonies; for be it remembered we have no fruit-bloom to speak of, and no fall flow. In fact, it is 25 years since I remember our bees getting very much honey from fall asters. As a natural consequence we have to bend every energy to get our colonies strong for clover and basswood.

As I have already pointed out, Mr. Burt has for years been going ahead of us by lengthening his honey-flows.

ALSIKE AND ITS ADAPTABILITY TO WET SOILS.

And this reminds me that alsike will grow in a good many places where other clovers would be killed out. It thrives on a wet soil, and, what is more, the heaving frosts do not destroy it as they do peavine clover with its long tap-roots, which are often snapped in two by the rising of the soil through the action of the frost.

What we are particularly anxious to get

hold of now is what the effect of 20 or 30 or even 50 acres of alsike would do within easy range of a bee-yard of, say, 100 to 150 colonies. Of course, I appreciate the fact that white clover and basswood yielding their quota would, to a certain extent, obscure the actual aggregate received from alsike; or, to put it another way, the alsike might do ever so well, and the white clover and basswood ever so poorly; and it would be difficult to determine the proportionate amount of honey yielded by any one of them, unless we watch *where* the bees work. If they did not visit the white clover during the season, and were busy at work during the heaviest flow on alsike, this would be a strong pointer in favor of this plant.

It is a good time now to get alsike and pea-vine clover sown in your localities; and it is my opinion that it will pay the bee-keepers well to furnish free seed within a mile and a half of their yards.

Remember, when you do this, alsike has a wonderful tenacity for the soil. If it is once grown it spreads rapidly over the farm and pasture lands. So far from being a noxious weed it adds materially to the value of the pasture, even if we throw the bees entirely out of consideration.

DR. E. F. PHILLIPS.

ON the front cover page of this issue we are glad to introduce Dr. E. F. Phillips, in charge of apiculture during the absence of Mr. Benton, in the Department of Agriculture, Washington.

Our first acquaintance with Dr. Phillips began when we received a letter from Prof. E. G. Conklin, of the University of Pennsylvania, asking if one of his students, Mr. E. F. Phillips, who had graduated from the University, and was then pursuing a post-graduate course, might come to Medina and pursue some of his studies already begun at the University along the line of parthenogenesis. He wished to know whether we would be willing to allow him the privileges of our bee-yards here where he could gather material, and do some work in the line of some original investigation. He stated that Mr. Phillips was a young man of more than ordinary ability; and recognizing the special facilities that we had at Medina, he would consider it a special favor if we would allow him to continue the line of his studies at our office. We immediately replied that we should be more than pleased to have him come, especially as we understood he would bring some of the apparatus from the college, and was prepared to make dissections of bees and queens. Accordingly, in June following, 1903, Mr. Phillips presented himself at our office. He was given a desk where he could do inside work, and was permitted to go anywhere he pleased, and gather any specimens which he desired for his special work.

He had not been long at our place before it was apparent he was not only a trained scientist, able to weigh evidence carefully

and impartially, but was in every sense of the word an agreeable gentleman. He went at his work in a manner that was characteristic of the man: and so far from being a hindrance he gave material assistance in the way of suggestions, both in practical work and in the line of scientific proof of certain disputed points.

He spent two different summers with us during which he gathered together an immense amount of valuable material, for he had dissected numerous queens, normal and drone layers, and went back to the University to carry on his studies further.

We heard nothing from him until we were advised by Mr. Benton that he had been appointed to assist in the Division of Apiculture at the Bureau of Entomology; that he would be in charge during his (Mr. Benton's) absence on an extended tour in quest of new races of bees.

During the time he has held the position he has been by no means idle. Necessarily he has had to take up work that Mr. Benton had already begun, and, besides this, has instituted new lines of work of his own. The volume of correspondence as the result, from bee-keepers and others, in regard to new races of bees, the distribution of honeyplant seed, besides a great string of questions, has been considerable. While Dr. Phillips is ably assisted, a great deal of the work devolves on him as expert in the Division.

He delivered a series of lectures at institutes throughout York State, last winter, and read a valuable paper regarding his work in the Division, at the Chicago convention of the National Bee-keepers' Association. He has lately taken up one department that I am sure will prove to be very helpful to bee-keepers; and that is, something relating to the brood diseases of bees.

The last thing that has appeared from Dr. Phillips is Bulletin 55 on the rearing of queen-bees, already mentioned in these columns.

Bee-keepers all over the country may sincerely congratulate themselves on having so competent and thoroughly trained a man in apicultural work at Washington. All those who heard Dr. Phillips at the various meetings at which he has read papers were impressed with his marked ability. It is to be hoped that his services will be retained, if for no other reasons than that scientific research on the general subject of bee keeping may be advanced.

COST OF BEE-KEEPERS' SUPPLIES; HAS THE PRICE BEEN SHOVED UP TO AN UNREASONABLE OR EXORBITANT FIGURE?

ALMOST any thing that a manufacturer of bee-keepers' supplies might say might be construed as smacking of prejudice if nothing more. As the editor of this journal happens to be connected with the manufacture of bee-keepers' supplies (fortunately or otherwise) he does not propose to make a statement himself, but to present an array of facts and figures gathered by a dis-

interested reporter on the *Cleveland Press*, one of the great metropolitan dailies, showing the conditions as they actually exist in the city of Cleveland so far as the cost of construction is concerned, of which lumber and labor are the chief items. The headlines, together with the diagram below, were prepared by the *Cleveland Press* artist, and speak for themselves.

Commencing with the cost of labor the reader will note that the big man at the left is supposed to represent the relative cost of labor in 1906. The little man at the right shows the relative cost of the same class of labor during 1901. The variation in the height shows the actual advance in five years. This comparison is continued, showing the ratio of values of lumber in 1906 and 1901, and of paint, etc., during the same period. But the most striking comparison of all is the size of the house that could be built for \$3000 in 1901 and 1906.

Clevelanders who are building homes have discovered that prices of building materials and labor have gone skyrocketing. A conservative estimate is that it costs fully 35 per cent more to build a frame house this year than it would have cost five years ago, and about 20 per cent more than one year ago.

A house over one third larger could be built five years ago than now for the same. Contractors estimate that a house that cost \$3000 to build in 1901 would now cost at least \$4000, and some of them figure as high as \$4500. The same house would have cost \$3500 a year ago.

EVERYTHING HIGHER.

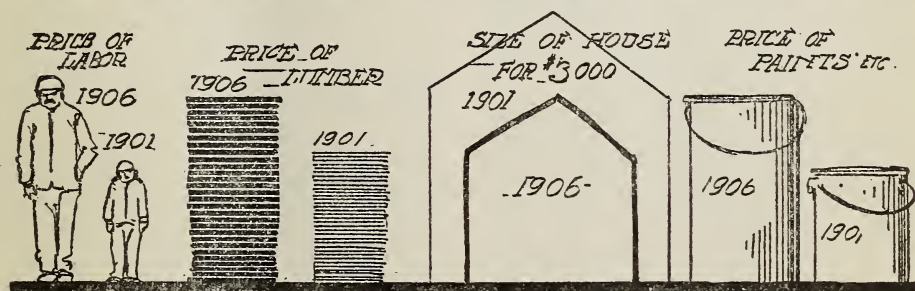
Big advances in the prices of labor, lumber, paints, and glass have been the principal factors in putting up the cost of building a house. Labor is the biggest item. Wages of the various building trades have advanced from 45 to 100 per cent since 1901. A conservative average is 60 per cent.

Lumber averages 23 per cent higher, although Norway pine and hemlock bill stuff has jumped fully 37 per cent. Finished lumber, shingles, etc., have not advanced as much.

Paints, oils, varnish, turpentine, shellac, etc., average 70 per cent higher than in 1901. Glass is 10 per cent higher than five years ago.

The advance in brick and stone has been small, but other building materials not mentioned above have advanced from 10 to 25 per cent.

\$3000 HOUSE NOW COSTS ALMOST \$4500 TO BUILD



The statement accompanying the diagram from the *Cleveland Press* of April 11 are here given, and speak for themselves.

LABOR.			
	1906.	1905.	1901.
Carpenters.....	42½-45 c.	40 c.	27½ c.
Bricklayers.....	50 -60 c.	55 c.	40 c.
Laborers.....	25 -30 c.	20 c.	15 c.
Painters.....	37½-40 c.	37½ c.	27½ c.
Plasterers.....	50 -55 c.	50 c.	35 c.
Lathers.....	45 -50 c.	43½ c.	30 c.
Tinners.....	37½-40 c.	32½ c.	25 c.
Roofers.....	47½-50 c.	40 c.	30 c.
Tilers.....	43¼-50 c.	40 c.	30 c.
LUMBER.			
	1906.	1905.	1901.
Bill stuff, 1000 ft.,	\$26.00	\$23.00	\$19.00
Yellow pine, inch,	.45	.35	.35
Shingles, per 1000,	3.75	3.75	3.50
Flooring, 1000 feet,	30.00	27.00	25.00
GLASS.			
	1906.	1905.	1901.
Standard size.....	35 c.	35 c.	32 c.
PAINTS, ETC.			
	1906.	1905.	1901.
White lead, per lb.,	7¼ c.	6¼ c.	6½ c.
Turpentine, gall.,	73 c.	63 c.	39 c.
Shellac, 70 per cent higher than in 1901.			
Varnish, 25 per cent higher than in 1901.			

A house that cost \$3000 to build in 1901 costs \$4000 to \$4500 now. Other buildings have advanced in propor-

Now, lest the reader may think that these statements are made to favor the house-builder, I would respectfully ask him to go to his nearest contractor, submit this comparison of the \$3000 house, and see whether or not it is correct. I did this very thing, and found that a friend of mine, who was about to build a house, submitted some plans to an architect early last year. The total cost then was \$1500. Imagine his consternation when the contractor told him that now he would have to charge him \$2500 for the same house. On another plan to the same party the price in 1904 was \$2200 and in 1906 the figures had increased to \$3500.

Lumber and labor are the two chief items that enter into the building of a hive as well as into a house. While we do not expect to advance our present prices, we assume that our readers are able to draw their own conclusions whether those prices are unreasonable in the light of the facts given above.

BEE-KEEPING IN ALABAMA.

BY T. P. HALLOCK.

[This is the first of a series of articles which we hope to print from time to time on bee-keeping in different States in the Union. This article on Alabama is not as complete as we might have desired, owing to the difficulty we experienced in getting authentic information. However, we expect that succeeding articles will be of more interest and more complete. We hope to discuss bee-keeping in Pennsylvania in our next issue.—Ed.]

The State of Alabama is one of the best adapted for bee-keeping in the Union. The weather, natural growth of pollen-bearing plants, etc., all tend to make this an ideal bee country. The shipping facilities offered in most parts of the State are good, and northern shipments can be cheaply made by boat from the southern gulf ports.

Bee-keeping has been a neglected pursuit here. Where bees are kept quite extensively, the methods followed are, to say the least, out of date. Still a majority of the bee-keepers are anxious to learn the great possibilities this industry offers, and are introducing modern hives and modern appliances. One of the leading bee men writes us that in ten years Alabama will be one of the great centers of honey interests, and we really believe that he is right. The southern farmer of to-day realizes that he is getting but half of what he might from his land, and is studying the conditions which will increase his income. Bee-keeping, when investigated, will soon spring to prominence in this admirable location.

LEADING HONEY-PRODUCERS.

Under this heading we give the names of the two leading bee-keepers in the South. Mr. J. M. Jenkins, Wetumpka, has often been heard of through these columns. He is engaged in the bee business, heart, soul, and mind. In addition to his apiary of several hundred colonies, he runs a large factory where bee-supplies are manufactured. He is, without doubt, the leading supply-dealer in the South. We expected to be able to show Mr. Jenkins' picture, but he is somewhat bashful about making a public appearance. We shall try to introduce him to you some other time.

Mr. W. N. Cannon, Greenville, Ala., has a very large apiary, keeping between 450 and 500 colonies. Mr. Cannon says that he is located in the best sweet-clover belt in the United States and that with proper attention he can easily produce 100 lbs. per colony per year.

QUEEN-BREEDERS.

Mr. W. S. McKnight, Newtopia, is probably the leading queen-breeder in the State. We are unable to give his figures in regard to the extent to which he raises queens, but have no doubt that he raises more than one thousand queens yearly. His principal strains are golden Italian and Carniolans.

Mr. R. O. Cox, Greenwich, is another queen-breeder who is well known to our readers. Mr. Cox makes a specialty of red-clover Italian queens, and has the facilities in his apiary of over 100 colonies for the production of very fine queens of this strain.

Mr. W. J. Forehand, Ft. Deposit, is a queen-breeder who is well known to most of our readers. His specialty is Italians, and his apiary embodies excellent facilities for rearing good queens in large numbers.

Mr. E. A. Simmons, Greenville, raises a very fine strain of Italian and red-clover queens. His queens are considered among the best.

There are several other queen-breeders in the State who raise queens principally for use of nearby bee-keepers. A great many of these have not felt sufficiently experienced to offer their queens to bee-keepers throughout the world.

EXTENT TO WHICH BEES ARE KEPT.

Relying upon the best information at our command, we would say that 300,000 colonies of bees is very close to the actual number kept in Alabama. This represents about $1\frac{1}{2}$ colonies to each farm in the State. However, we believe that these 300,000 colonies are all kept on not more than 50,000 farms. Therefore the average number of colonies of bees kept by each bee-keeper is about 6. The average value of Alabama bees per colony, collectively, not by the single colony, is about \$1.50 each. Thus the amount of capital invested in bees in the State is about \$450,000.

HONEY PRODUCTION.

We would estimate this at about 2,700,000 lbs. per year—an average of about 90 lbs. per colony. This is a very good average for a State where bee keeping is so prominent an industry.

WAX PRODUCTION.

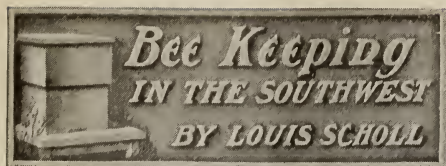
In the production of wax, Alabama is one of the foremost States. Several times statistics have shown her to lead in this product; but we believe that one or two other States, where more colonies of bees are kept, have not been properly accredited. The average production of wax per annum per colony is close to $\frac{3}{4}$ lb. Thus the estimated production for the entire State is about 225,000 lbs. If we value this immense crop at the present market price of 30 cts. per lb. we find that the wax crop of Alabama is worth something over \$65,000 annually—quite a valuable crop to be produced by the bees alone.

SOURCES OF HONEY.

In different parts of Alabama, as in other States, different pollen-bearing plants predominate in certain localities. The most general plants—those which are found to some extent in nearly every section—are alders, gallberry, clovers, melons, tulips, and innumerable other wild and cultivated plants which will invariably be found in a tropical clime. Some, however, state that sweet clover is the only one to be relied on in many parts.

MARKETS.

No great amount of the honey crop of Alabama is marketed in the State, although a part of it is sent to Birmingham and some to Montgomery.



Breed your queens to suit your demand for honey-gatherers.

There are bee-keepers who keep bees, and then there are real bee-keepers.

Scrub bees, scrub bee-keeping, and scrub bee-keepers are usually found at the same place.

They say that bee-keepers should organize to protect themselves. Why must they always be on the defense?

Increased yields of the apiary must come through better management if the strain of bees is a good one; or if not, a good strain must be secured, and the yard graded up by using good breeding-queens of a known honey-gathering strain. Here is where improvement of stock comes in.

All that is needed by a good many people with the patent-medicine habit is to get out into the sunshine. The apiary would be the place for them. Surely nothing could bring relief better than the bright sunshine, the fresh air, the hum of the bees, and outdoor exercise. Besides, fresh air and sunshine are a very good sort of life insurance.

The best of every thing is absolutely independent of market conditions. The best creates its own price regardless of those who control ordinary market conditions. The writer has seen old dark honey offered at 25 cents a gallon and the seller hunting for buyers, and at the same time and place he saw extra fancy comb honey in sections selling at 25 cents a pound, and buyers hunting the seller.

TWO APICULTURAL BULLETINS.

A bulletin on "The Rearing of Queen-bees," by Dr. E. F. Phillips, Acting in Charge of Apiculture, Bureau of Entomology, Washington, D. C., came to my hands same time ago. It is just such a bulletin as I have wished for while at the Texas Experiment Station. Many questions were received in regard to the best methods of queen-rearing and other information on this subject. This bulletin could have been mailed to such inquirers. It contains in compact form the latest methods for rearing queens, and much other information that will aid in producing a better stock of bees.

Another bulletin hails from Cuba, Circu-

lar No. 29, Estacion Agronomica, on "Raising Bees Here in Cuba," by Ernest W. Halsted. It is in the Spanish language, of a practical nature in its contents, and largely illustrated with half-tone plates. Such a bulletin should do much good among the common class of bee-keepers in replacing the still much used "corchos" with our modern frame hives, and leading the Cubans to adopt the more modern methods and appliances.

A HANDFUL OF BEES IN THE FALL.

In Southwest Texas a mere handful of bees in the fall, given a prolific young laying queen, and placed on full combs of honey in a hive, will give wonderful results the following season. They will winter safely, as they go into winter quarters with a lot of young bees. The usual fall honey-flows are splendid to stimulate these little "babies," and by winter they are in a prosperous condition to come out next spring and breed up to strong colonies for the honey-flow. There is an abundance of nectar and pollen yielding flora throughout the early spring, beginning in January; and when the flow comes in April these handfuls have turned into rousing colonies to roll in the surplus.

Having a young queen, there is little swarming; and the less a colony is inclined to swarm, the more honey it is likely to gather. The rearing of drones is also reduced to a minimum—an important factor, also, as it is with old queens, an overproduction of drones means a lot of useless consumers and a drain upon the colony in that respect alone. Young queens will keep brood-rearing going until late in the season, putting the colonies in the best possible wintering condition. Late brood means a lot of young bees over winter to do their best in early spring when a strong force of such bees is worth as much as five times as many later in the season.

Old queens will cease laying at the cessation of the honey-flow. The colony winters with old bees which die off rapidly early next spring, and leave the colony weak at just the time when vigorous young bees are needed. In consequence of this fact, colonies with old queens drag behind all season, to be outstripped by the others. The bee-keeper can easily figure on which would yield the best results. In my experience, young vigorous queens of the previous season's rearing are what I want.

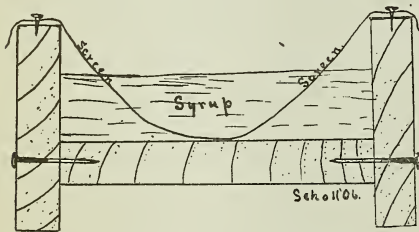
OUTDOOR FEEDING.

It becomes very necessary at times to feed bees, and there are many ways of doing this. My preference is to give combs of sealed honey either from strong colonies or from a stock of such combs stored away in the honey-house. Of these, one can not always be in possession, however, especially during or after a poor season. Extracted honey would be our next resource, if we have it, for I have always been much opposed to using any kind of honey from other sources except our own, *unless* we are absolutely certain that there is no danger of

spreading diseases or foul brood. I would rather feed sugar syrup. It is safer, and cheaper and better in the long run. Besides feeding in the liquid form, cakes of sugar candy can be placed over the cluster. This is preferable for winter feeding. Cakes of solid granulated blocks of honey will answer for this purpose most admirably.

The syrups are fed in two ways—either in the hives, or outside, in long troughs. Here in the South, and for wholesale feeding especially, the latter is mostly practiced. We have tried several ways of outdoor feeding, both in spring for stimulative purposes, and in fall and spring for stores when "the bees had run short." The most satisfactory way has been that of S. I. Gilbert, Jr., of Carrizo Springs. While I was at his apiary the bees were having a glorious time—a heavy honey-flow was on, yet the surrounding country was bare of any bloom.

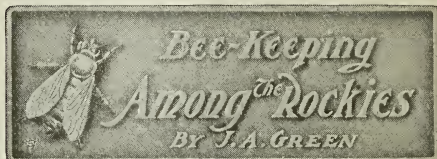
The source was soon located. The season was a poor one, and wholesale feeding had to be done, and outdoor feeding was the most practical, economical, and cheapest in this case. Extracted honey was fed several hundred yards from the apiary. There is one good point well worth remembering when feeding in this way. The distance the feed is placed from the apiary makes a difference. It should be far enough away to make the bees fly home more as though they came from the fields during a honey-flow. When the trough is too near or even in the apiary, as I have seen in several instances, there is greater danger of robbers molesting after the feeding is over. There seems to be little danger on this score when the feeding-trough is further away.



The trough used is very simple in construction, and easily made, hence I should prefer it. A long fence board or plank, 1×6 inches by about 16 feet long, can be found around almost any bee-keeper's or farmer's home. Also two others of about the same length, but only 4 inches wide. These are nailed on the sides of the six-inch plank to form a long narrow trough (see sketch of cross-section). Short end-pieces are nailed on each end, and the whole is covered with a narrow piece of common screen wire cloth in such a way that the cloth will sag down to the bottom of the trough in the center. The edges of the cloth are tacked all along to the upper edge of the sides of the trough. This screen prevents the drowning of the bees, and the syrup can be taken by them to the very lowest level.

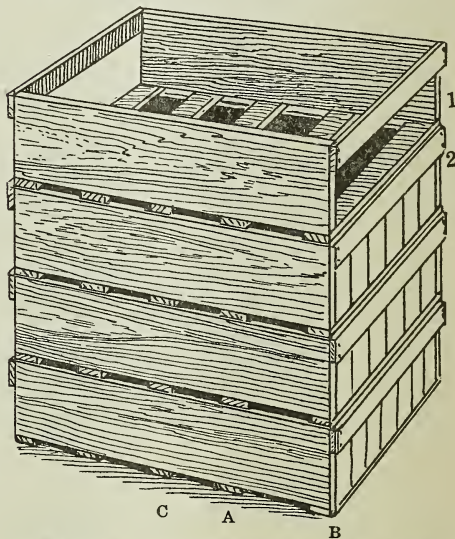
After all the syrup needed has been fed, water is added to the liquid, adding a little more at intervals until pure water remains in the trough. In this way the bees are weaned, and robbing prevented.

At the yard of 260 colonies (shown elsewhere), located on the banks of the Nueces River in West Texas, seven barrels of sugar were used in feeding for winter stores late in the fall, after a poor season. But such should be very seldom.



STORAGE-CRATES FOR COMB HONEY AND SECTIONS.

The engraving shows a pile of storage-crates filled with sections except the top one, which is empty, the better to show the construction. The engraving is a little faulty in that the tops of the sections in the fill-



Distance A to B should be less than C to A instead of greater.

ed crate nearest the top do not show as they should, through the open bottoms of the empty crate. To understand more fully the construction and uses of these crates I would refer the readers to page 75 of GLEANINGS for Jan. 15. These crates are made of any cheap lumber, the only point where a mistake is likely to be made being the making of them of unseasoned lumber, so that the side pieces, when they shrink, are less than the height of the section. I pile these crates up,

even when full of honey; as high as I can reach; and it is necessary that this weight should not come directly on the sections. In piling up sections that are to stay any length of time in the crates, always lay a piece of paper over each one, which makes it practically dust-proof, especially if the paper is long enough to extend down over the ends of the crates.

Pile your honey in a hot dry place. If there is any suspicion of coolness or dampness about it, do not put the honey near the floor or in a corner. Have it at least a foot from the floor, and where the air can circulate freely all around it.

LIGHT BROOD FOUNDATION.

Friend Scholl argues on page 208 for the use of the lighter grades of foundation. I had always myself believed in the use of light foundation. I made it myself, and never had any trouble with it on account of light weight. But two years ago I filled a number of frames with light brood foundation, well wired. When I came to use these frames, I found the foundation buckled and bulged so that I hardly got a perfect comb from the lot. Three reasons occur to me for this. One is that the frames were filled in cold weather. Some have claimed that such will always buckle.* Another is that the frames had been stored in a rather warm place for a time previous to use—possibly too warm for the foundation to stand. The other is that it was the new Weed-process foundation. Some claim that this buckles worse than the old process. Which of these reasons is responsible, or whether the failure is to be laid to a combination of two or more, I do not know. I wish I did. Heavier foundation of the same make had worked all right the season before. In this case the use of light foundation was far from being a saving, if it was the weight that was responsible.

SIZE OF ENTRANCE FOR SPRING.

Better contract the entrances of the hives pretty closely until the weather gets warm and the colonies strong. This helps along brood-rearing by keeping the hive warm, and is a safeguard against robbing.

SIZE OF ENTRANCE FOR WINTER.

Last fall I objected to the advice to contract the entrance of the hive for winter. I am more than ever of the opinion that it is best to have a good-sized entrance until brood-rearing begins in the spring and the weather is reasonably warm and settled. Last fall I inspected an apiary which I found in unusually good condition for the season. All except some of the later swarms were strong in bees, and with an abundance of honey. Such colonies almost invariably winter well here. Yet this spring more than half of them were dead. They died with a hive full of bees and an abundance of honey. The combs were wet, and every thing looked as though the bees had smother-

ed. The owner had contracted the entrance to a space about $\frac{1}{4} \times 1$. I believe if he had left the entrance full width almost all that had honey enough would have lived. I think this mistake cost him forty or fifty good colonies of bees. An apiary of mine only a little over two miles away lost less than ten per cent, and another apiary only a mile away wintered as well.

STARTERS IN WIRED FRAMES.

The question is often asked whether frames can be successfully wired when only starters are used in the frames. If care is taken to have the hive level, the bees will build over the wire almost as well as if it were not there. I have had hundreds of such combs built, and I find just one objection to the plan; and that is, that it results in a greatly increased amount of drone comb being built. When the comb-builders in extending the comb downward reach the wire it seems to break up the regularity of their work a trifle—just enough so that, if the tendency to build drone comb is present, they seem to think it is a good place to make the change.

CORRUGATED PAPER IN SHIPPING-CASES.

On page 297 the editor appears to think that the weight of sections on a narrow strip of corrugated paper would crush or mash down the paper. Possibly the ordinary drip cleat, about $\frac{3}{4}$ inch wide, would do this; but in my use of the paper some years ago I used a strip of the paper an inch wide, just as the no-drip cleats are used. The end tiers of sections were thus supported by $1\frac{1}{2}$ inches, and the central tiers by only an inch of corrugated paper. Something over 200 cases were prepared in this way. Most of these were shipped to towns about 40 miles away. I went with it myself, delivered it to the grocers, and had a chance to inspect it all myself. These narrow strips of paper, while slightly flattened down, had not lost all their elasticity by any means, but would have been good for a much longer trip. [I never tried the corrugated paper one inch wide; but I did try the narrow drip cleats on the paper, and found that these narrow edges would break down the corrugations when the ordinary weight of sections was applied. This, of course, would destroy the cushion effect so necessary.—Ed.]

CAUCASIAN BEES.

I deeply regret that the government has undertaken the distribution of these bees without further test of their suitability for the general purposes of bee-keeping, and I hope that no one will get any of them unless he is prepared to take the fullest precautions to prevent their mixing with other bees. So far there appears to be much stronger testimony against them than for them. In fact, about the only claim made for them seems to be the comparatively unimportant one of gentleness. It may appear at first sight that the proper way to test them is to distribute them and let the public decide as to their merits. But there is an important difference between bees and other things in this respect. If the Department of Agri-

*This is true. The work should *always* be done in a warm room.—Ed.

culture distributes a worthless variety of radish, for instance, no one is greatly harmed. No one is likely to plant them a second time or to raise seed from them, and the bad results of the experiment do not extend beyond the experimenter, and disappear entirely in one or two seasons. But the one who introduces a worthless variety of bees into a bee-keeping neighborhood may do his neighbors hundreds of dollars' worth of damage which they are powerless to prevent, and the bad effects of which they may not be able to get rid of for a number of years. The worst feature of the business is that those who are least capable of properly testing them and judging as to their merits are the very ones most likely to undertake it.

SUBSTITUTES FOR POLLEN.

Feeding some substitute for pollen will be very profitable unless your bees have access to early flowers. As such sources of early pollen are rather scarce in many parts of the irrigated West, it will pay you to look after this.

SOURCES OF EARLY POLLEN.

The earliest blossom on which I have found the bees working has been the elm, March 15, closely followed by the soft maple. Both of these trees, however, are very rare in this locality. The first source of any considerable amount of pollen is the Lombardy poplar, about a week later, followed in four or five days by the Carolina poplar. Both of these succeed well here as shade-trees, and the Carolina poplar in particular is being largely planted for that purpose. The native cottonwood, common almost everywhere, comes next, and in many localities it is the first source of any amount of pollen. Then come the various fruit-trees, so common here. With these comes a bountiful supply of honey, and brood-rearing is stimulated to the utmost. Nothing should be allowed to check it after this. If honey from cleome or other natural sources does not fill up the gap between fruit-blossoms and alfalfa it will pay you to feed.

CLIPPING QUEENS' WINGS.

Get the wings of your queens clipped before the colonies get too strong. I know that there are a few who do not believe in clipping the wings of their queens, and that there are a great many who, for various reasons, neglect it; but I do not know how any one keeping bees on a commercial scale can afford to try to get along with unclipped queens.

KEEP YOUR HIVES TIGHT ON TOP.

See that your hives are tight on top during the early breeding season. A little leak at the top of the hive will let a great deal of heat escape, and discourage brood-rearing greatly if the colony is at all weak at the start. As most of the covers supplied by the hive manufacturers will warp in a short time so as to leave cracks along the edges, a cloth of some kind is almost a necessity. Several old newspapers spread over this will help to make a tight and warm cover.



SWARMING WITH NO INCREASE.

"Good morning. This is Mr. Doolittle, the bee-man, is it not?"

"It is certainly Doolittle, and I keep a few bees."

"My name is Young; and I came up from Alabama to have a little talk with you on the swarming matter."

"Are you able to control swarming, Mr. Young?"

"No. If I had been, I should not come up to your cold climate to talk the matter over with you."

"But you know some claim that they can work so that they practically have non-swarming."

"Yes, I am aware of their claims; but after studying on and trying very many of these anti-swarming plans I find that they all fail sometimes, for it is natural for bees to swarm. So I have concluded to let 'em swarm."

"Yes, I see; and that is the way the most of us conclude, sooner or later."

"That is right; but I have as many colonies as I wish, and so do not desire any increase. I have a method by which I hope to have no increase, and yet allow of natural swarming."

"That so?"

"Yes, and my object in coming to see you was that we might talk it over together, to see whether you thought this method would work well."

"Very good. I am in a listening attitude."

"When a swarm issues, hive it in an empty super; and top of this put another super with sections filled with comb foundation. As soon as the bees get settled in these, take them and carry to their old stand; but instead of putting them on the old bottom-board, put them on top of the cover to the old hive from which they came, letting the hive-cover serve as the bottom-board for the new colony."

"Don't you have any frames or anything of the kind for comb-building in the empty super, under your super of sections?"

"No; for as soon as the swarm accepts their new surroundings and begins to draw out the foundation in the sections, and before the queen has a chance to lay any in these sections now being drawn, I expect to carry out my method by removing the hive-cover, which separates the two colonies. Then I will take out the empty super and let the super of sections, in which the bees are at work, right down on the old hive from

which they came. You understand what I have done so far, do you not?"

"Yes; go on."

"Now, does it not seem plausible that the bees would keep right on at work in the sections they have commenced in, and the queen go down into the hive from which she came, and, after destroying the queen-cells there, the colony be satisfied, and continue work right along in the sections without any further swarming?"

"There is a possibility that this method might work in Alabama, but it will not here in York State. If I were in your place I would try a few colonies that way, and that will tell you for certain as to its being applicable to your section of country."

"Why will it not work in your State?"

"Because the queen would not go down and destroy those queen-cells unless there should come a great dearth of honey just after the swarm issued—not but that she would go down; but the bees of the swarm, together with those which had and were emerging from the brood in the hive would bring back the swarming-fever again, and the next day or two they would swarm; and even should the queen destroy the cells, or cause the bees to do so, if the yield of honey was not so great that all colonies gave up all idea of swarming in their mad scramble for honey, the bees would start queen-cells again; and as soon as they were ready they would swarm a week or so later, coming out as a prime swarm, the same as they did at first. I have gone all over this ground, and much more like it or very similar to it, and have found that there is always danger from swarming by any plan that returns the old queen back to the brood again, together with the bees that went with her in the swarm. But whenever the queen is kept away from brood till all the brood is sealed over, or all the bees which went with the swarm are kept away from the old hive, and their queen returned, we can be quite positive that no more swarms will issue that season, unless the same is long drawn out by a moderate flow of nectar."

"Well, what shall I do?"

"I have overcome the difficulty you seem to be in by putting on the sections quite early, so as to retard swarming as much as possible; then when the time for swarming came, set the hive from its stand, and put an empty one in its place, having dummies in it to take the place of four of the frames, if the hive used is a ten-frame Langstroth, which is as small a hive as I should use if I were working on any of the plans which contemplated no increase in the apiary. Now set the super of sections from the old hive and look over the brood-combs, and all that you find that are not more than one-fourth full of brood, and all that do not have any brood in them, put in your new hive. In an ordinary season, and with the ordinary queen, you will find from two to four such combs; and these, together with the needed frames filled with worker foundation in wired frames, will make you six

combs now in the hive, which, with the dummies, fill the same. Over this hive put a queen-excluder, and top of the excluder set the super of sections. If the sections are of the open-top kind, put a sheet of enameled cloth over the whole top of the super, except a little place large enough to allow two or three bees to pass at a time, and this place should be in the center of the end over the entrance to the hive. Having things thus fixed, shake the larger part of the bees off the combs remaining in the old hive, making sure that the queen is in the lower hive, when the frames of brood are to be arranged in the old hive, next one side, a bee-space apart, and a dummy or division-board drawn up next to them, when this hive of six or seven combs of brood, with the few adhering bees, is to be set on top of the enameled cloth and left for ten days."

"Don't you look for queen-cells, and only make colonies in this way that have cells started?"

"No. I can make the change almost as soon as I can look for the cells, and it makes no difference with the plan whether queen-cells are started or not. This going over all colonies once every week looking for queen-cells, as many advise, is an endless job. When you and the bees are ready, you just go right on and do the work, and you will find that such as have queen-cells started will do no better than those which have not. By going right ahead when you and the bees and the harvest are all ready, you have your swarming all done up at once, and you are ready to go at other work. If, in shaking, you find any queen-cells with larvæ in them, or those which are sealed, you will want to tear them off, else they may hatch before your next manipulation, and bother you in your work."

"What is the next operation or manipulation?"

"Ten days after making the colonies swarm, you will look over these combs of brood in the upper hive, and take off all queen-cells that you find on them. Some of the colonies will build cells, and some will not; but it is best to be on the safe side, and look all over. It will not take long; and as the bees will be mostly below, all queen-cells will be easily seen."

"If I am right, that fixes the upper hive so the bees can not get any queen there, does it not?"

"Yes; and at this time you will want to see about the super room. If the sections are getting full, put another super on top of them, raising the sheet of enameled cloth to the top of the super last put on. In this way all the young bees which emerge from these upper combs of brood will be run below, thus helping in the sections, while enough will stay at all times to care for the brood properly."

"Then you keep all the bees together in this way the same as I would by my plan?"

"Yes."

"Well, what next?"

"Keep on putting supers between the

hives as needed till the end of 21 days from the time of making the swarms, when the dummies are to be taken from the lower hive, and that hive filled out with combs from the upper, when the bees are to be shaken from any remaining combs, and from the hive, and the same stored away for the next season's use, or the combs massed together on some hive worked for extracted honey, or for reserved combs of honey for feeding the next spring."

"Is that all there is of it?"

"Yes—all but one thing; and that is, if there is any drone brood in any of the combs which go above the queen-excluder, some means must be provided to get rid of them, otherwise they will clog the queen-excluder and die there. I generally do this by boring a half-inch hole at the bottom of the upper hive near the center. In this way the most of the drones and workers which may chance to go out at this hole will find their way in at the entrance below. By using this plan you need make no increase, and yet obtain good results in section honey."



ORDERS OF INSECTS—CONTINUED.

Except for the large robust robber-flies and the small bee-lice the *Diptera* are not practically important to the bee-keeper. The robber-flies are of two types—the long dark-gray (often almost black) ones, and the shorter yellow hairy flies. These latter are very much like the bumble-bees in form and color. In many States these flies capture and suck bloodless many bees, yet there are so many bees in the colony that they rarely do serious harm, while in destroying insect-pests they do us great good. As I have stated, the bee-louse seems not to gain any considerable foothold in America. There is also one group of true parasites among the *Diptera*—the *Trypeta*. These parasitic insects lay their eggs on or in other insects. When these eggs hatch, the larvæ commence to feed on their living host, and fairly dismember it. The *Tachina* flies lay their eggs on their victims, and often to a great number. When the maggots are full fed they come forth and assume the seed-like puparium stage. The mature insects, or tachina flies, look much like house flies. Some are quite small, others quite large. Thus with *Diptera* as with *Coleoptera*, or beetles, and bugs, some are injurious while others are useful. Many are also useful in destroying and removing corion and other forms of decaying organic

matter. Beetles also aid them in this good office. We can often collect fine beetles and flies in a dead carcass or in decaying fungi or vegetables.

We have noticed how almost every order of the insect world directly affects the bee-keeper, as some of the members essay to injure his pets of the hive. Among the nerve or lace wings—*Neuroptera*—the dragon-flies are ever alert to swoop down upon and devour the incoming worker with its load of precious nectar. The mantis, among the locust order—*Orthoptera*—is equally partial to a banquet of bees. The stinging-bug—*Phymata*, of the *Hemiptera*—lurks among the bloom of the goldenrod, waiting to seize and feast on some luckless bee that comes fearless for the nectar droplets. The thrips—*Thysanoptera*—harm the bee-keeper directly only in destroying the bloom; and the bird-lice—*Mallophaga*—in annoying the fowls, which often share his attentions with the bees. The beetles—*Coleoptera*—are the least harmful, as *Dermestes* and the meal-beetles work only on the dead bees and bee-bread of old combs. Among the *Diptera* are found the savage robust robber-flies, which, doubtless, of all those mentioned above, are our most formidable foes.

EXACTITUDE.

Dr. Miller's observations tally with my own regarding the bee-space. While a scant $\frac{3}{8}$ is often found between combs, it may be reduced even to a scant $\frac{1}{8}$ or $\frac{1}{4}$ inch. The old idea of unvarying cells in the comb, and exactitude in spacing, must be given up. Mr. Cowan, in his excellent book, gives a fine description, with illustrations, of these varying cells. He shows what we may all observe by careful inspection that cells vary, not only in size but also greatly in form. In some cases even four-sided or nearly square cells are discovered. In regard to the bee-space I also found that the narrow or smaller one gave the best results. While exactitude is not a characteristic of the bees, it is a necessity with the Heddons hive. This fact, with the difficulty of getting hives just precisely right, led me to return to the Langstroth hive after using the Heddons for a time. I am interested in learning that Mr. Hutchinson is also now of like mind. I hardly think Mr. Taylor will ever change.

Berlin, Prussia.

SHIPPING BEES FROM THE SOUTH.

I want to say for the benefit of all who ship bees from the South, don't do it. I shipped two cars, 600 colonies, and they nearly all died that winter. They were nearly all Italians. They filled their brood-nest so full they all froze, and they dwindled badly.

W. L. COGGSHALL.

Groton, N. Y., Jan. 27.

[This little item, though short, may be worth many times the value of ten years' subscription to all the bee-journals. Yet some say they can't afford even one paper. —ED.]

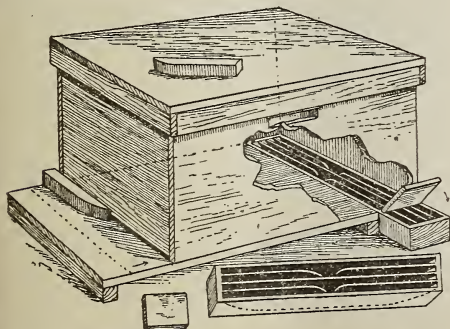


SPRING FEEDING.

How Stimulative Feeding Helps to Give a Good Working Force of Bees in Time for the Honey Harvest; How it Pays in Dollars and Cents.

BY E. W. ALEXANDER.

In order to acquire the best results from our bees it is quite necessary to do all we can to build them up into good strong colonies early in the season, especially where our main harvest is from clover. We all know from sad experience what the result will be if it takes three or four weeks of the best of the summer to rear a working force to gather the little that is left when the harvest is nearly over. So let us see what can be done in order to have a good working force in every hive at the commencement of our first harvest of surplus. I know of only one way to accomplish this, and that is by stimulative feeding from the time they commence to gather pollen until their hives are crowded with bees and brood. This can be acquired within 35 days from the time they first gather pollen, and costs only about 40 cents' worth of honey or sugar per colony, and a little time to build them up into strong full colonies ready for any harvest that may come, and is much better than to let those precious days go by and see your bees dwindle away to a mere nucleus.



THE ALEXANDER FEEDER AND HOW APPLIED.

With the feeder that is here shown which I will describe, it requires only one hour or less to feed 200 colonies; and in doing so you need not kill one bee nor waste a drop of syrup nor lose any heat from the colony you are feeding.

First, you see the feeder alone by the side of the hive; then you see it in position under

the back of the hive ready to fill, and a 4×4 block at the end of the hive to cover the end of the feeder when it is filled and in use. We feed the thin syrup quite warm; and the heat and odor as they rise up to the cluster, even though the cluster may be only a mere handful of bees, will start them at once for the feed, and in a short time the syrup will all be taken out of the feeder and put into a nice circle around the brood. There is not any other one thing connected with bee-keeping that I have tested more thoroughly in all its different phases than I have spring feeding; and if any other man had invented this feeder and the way of using it I should not hesitate one minute in saying that it was the most practical feeder that had ever been devised, for it is as convenient to use in the fall to feed winter stores as it is in the spring to stimulate early breeding; only in the fall put two or three under your hive at a time, and feed thicker syrup, all they may require, at once or twice. They are not in the way if left under the hive all summer; and if we have a cold wet spell in mid-summer, as we sometimes do, causing many colonies to destroy large quantities of their brood, all you have to do is to pour in a little syrup once a day while the bad weather lasts, and you will save their brood, and prevent them from becoming discouraged. And, oh how they will work when the flowers again commence to secrete nectar! I can truthfully say that, with us, spring feeding has been the means of our securing fully twice the amount of surplus honey from nearly every colony that we ever fed in this way, over what we could secure when the bees were left unfed, and they had to use three or four weeks of the clover harvest to rear brood and bees to gather the little they could find after the harvest was practically over.

The cut does not show the under cover of our hives. This has a $\frac{1}{2}$ -inch bee-space on each side, and it is very handy to cover over the top of the hive when extracting. It forms two dead-air spaces between the outside cover and the top of the combs, which is valuable both in extremely hot or cold weather. You will also see in the cut the entrance to our hive, and the blocks we use to close the same when we wish in cool weather, so only one or two bees can pass at a time. I wish I could impress the importance of this one thing, spring feeding, on the minds of bee-keepers in its true light; for I am sure that, if we give our bees the proper care in this respect, they will repay it in a bountiful harvest at the close of the season.

I am receiving letters frequently from parties wanting some of these feeders for spring use; but as we have nothing connected with bee-keeping for sale except extracted honey in the fall, I must refer you to The A. I. Root Co., which, I think, will supply you with all you may want, at a moderate cost.

I am well aware that I am again in the minority on this important part of spring management; and I assure you it is not

pleasant to stem the tide so often; but I find I either have to do it or keep still. I have only to recall the result of some feeding we did two years ago to show you why I am so much interested in spring feeding. We fed one half our apiary (250 colonies) about 40 cents' worth of syrup apiece, shortly after taking them from the cellar, and, although these were the lightest and weakest colonies we had, we extracted during our clover harvest over seven tons of nice clover honey from the 250 colonies fed, and only about four tons from the 250 colonies not fed. But during the basswood and buckwheat flow there was no difference in the amount of surplus these two lots of bees gathered. That three tons of additional honey that the bees that were fed gathered, brought us 6½ cents per lb., or \$390, for about \$100 expense in feeding, and I might cite other cases of the same kind. And then last season, in order to test this subject still further, we did not feed an ounce to any colony in the apiary, and our whole surplus was but little more than half what it was the year before.

You can make the syrup very thin after they get used to it, especially for Italian bees, as they will take it if it is but little sweeter than good maple sap. They require considerable water in the spring, and I think it is much better to give it to them in this way, for it saves many from being lost in search of it outside during those cool changeable days of early spring.

My friends, in the above I have tried to show you as best I could how you can feed your bees in early spring easily, and at but small expense, so you will be able to secure not only a much larger surplus, but also a much surer one than you otherwise would; and when this is accomplished it goes a long way in placing our business on a more solid and reliable foundation than it has ever been before.

Delanson, N. Y., Feb. 24.

IF I WERE TO START ANEW, WHAT STYLE OF FRAMES, SUPERS, AND AP- PLIANCES WOULD I ADOPT?

Argument in Favor of Wide Openings to Sec-
tions.

BY R. C. AIKIN.

Mr. Editor, I am going to answer this question straight, and without the bias "that I would use standard goods because they are standard." I have convictions that are not and have not for some time been bound by things standard. If you do not believe it, read this. My sections, fence separators, supers, hive-bodies, inner covers, outer covers, frames, and honey-boards are made to order. Even my shipping-case is too. Do you suppose I would be to all this trouble if there were not a faith behind it all?

I am adopting, have been for several years, supplies different from all others. May be crankiness in me causes it; but I have always

been possessed with a spirit of investigation and a burning desire to be original, and not simply follow the crowd without a reason for so doing. I will tell you some of the details of what I have *practically* adopted.

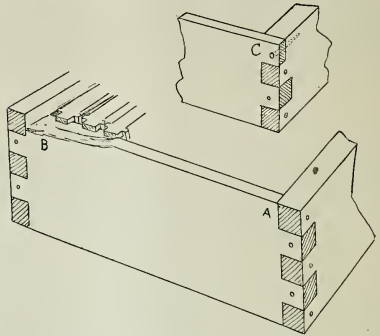


FIG. 1.—RIGHT AND WRONG WAY TO MAKE
HIVE RABBETS.

However, before describing my pet hive I will briefly tell of my ideas about some of the more standard goods as I have them made.

First, the dovetailing on hive-body ends used to be as at A in Fig. 1; and, when nailed, the best we could do, there stood up that thin ½ flange from the frame-rest rabbet, supported simply by its own strength. The top edge of both ends and sides tends to warp outward. Then, too, those thin edges would split off, exposing the frame ends as at B. I protested, but to no effect until I took Mr. Lewis, of the G. B. Lewis Company, and showed him how. He went home and changed his machinery, and they are now made as at C; thus that thin upright is nailed into the full heavy thickness of the body side. This is a decided improvement. The idea was original with me, and I directed Mr. Lewis' personal attention to it in the State House at Denver. I believe others, too, had mentioned the idea, but I made it stick.*

When getting Hoffman frames I have them special too. Yes, I use lots of them—almost have to when other people do, and I can't throw away all standard hives—too expensive. I have these frames made "full length" top-bars and said bars a plump half-inch thick only; and instead of the groove and wedge for foundation, the under side is simply a *plain surface*. The "full length" is to keep them from standing on the bottom if a hive-end warps out a little. It takes just a *little* warp to let the short frames drop, and to be able to use them in *all* makes of Langstroth hives.

Now about that groove and wedge. It is an out-and-out nuisance. Pound the wedges in—yes, take a follower-stick and drive them till they almost burst the bar; and if they stand in the dry awhile before using you will find the wedge and starter both lying on the

*The A. I. Root Co. has also been making the hive rabbet as shown at C for months.—Ed.

bottom. I am compelled either to nail them in or fasten with melted wax. These plain

[If the grooves are made considerably deeper than the width of the wedge there should be no trouble. The wedge should be driven *below* the surface of the wood.—Ed.]

top-bars are both better and cheaper than the regular. I drop the frame over a board, the top-bar resting on two stops so the foundation is centered, the bottom-bar on only *one* stop at its middle. (A three-legged stool stands firm on any surface. Four legs must have every thing even.) Cull wax is put in a tin cup or old can, and set in a wire frame over a common small lamp. The liq-

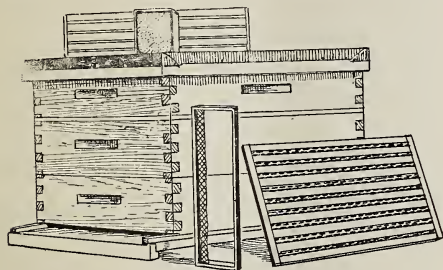


FIG. 2.—AIKIN'S SECTIONAL-BROOD-CHAMBER HIVE.

uid wax is poured from a common teaspoon, and forms a line of wax down one side of the starter. Take this frame off and put another on, and continue till you have stacked up quite a bunch; then lay down the board and pick up the frames one by one, pouring more wax on the *other* side of the starter just as you did the first side and it is done. It is *fully* as quick and easy as the groove-and-wedge plan, does not take any more wax, and *stays* put. The plain bar is cheaper, and can be scraped smooth and re-startered nicely. Let all factory people adopt the plain bar and this method of fastening starters. Now for *my pet hive*.

It is the sectional or divisible-brood-chamber style. The bottom-board is very similar to the common dovetailed-hive bottoms; a cleat is on the upper side, just like all common bottoms in use. The *body* parts may be either dovetailed or halved at the corners, and there is not another mark, rabbet, or cut on them save hand-holds—just the plainest simple box without top or bottom. It is $5\frac{1}{2}$ deep, 12 wide, and $16\frac{1}{8}$ long inside. A metal strip is used across each end for supports, just as in the common dovetailed supers, to support section-holders.

The frames are the standing style (see Fig. 2), just as plain as can be—end-bars $\frac{3}{8} \times 1\frac{1}{2} \times 5$; top and bottom bars scant $\frac{3}{8} \times 1 \times 16$. When nailed it is $1\frac{1}{8} \times 5 \times 16$. Each body takes eight frames with a follower board, and springs to take up slack. The follower is very simple too, and the springs the same as commonly used in supers. An inner cover of $\frac{3}{4}$ lumber, cleated on the upper side and flat on the under side, and as wide and long as the body, covers all.

But the outer cover—well, Mr. Root, *my*

outer covers are cheaper and better than your regular ones of either Excelsior or Colorado pattern. It is just a plain rim about two to three inches deep, and large enough to telescope the hive-bodies easily, about $\frac{3}{4}$ -inch play on one side and end when the other side and end are shoved up snug to the body. On this rim is nailed cheap lumber, and over this any water-proof that suits the fancy of the user. I have some of cloth and paint, some of Neponset paper, some tin—don't know yet which covering is best. I do know such a cover is simple, cheap, and good—used not to keep bees in or out, but is merely the sun and rain protection over all.

THE SUPER.

At present I am using a T-tin support. It is just a brood-body with T tins added. I make saw-cuts, and nail the T in. The separators used are fence style but special. They are 5 inches deep, just the depth of the sections. In other respects they are a regular fence for T supers; and that the reader may understand why the fence is full depth—that is, 5 inches—I must describe

MY SECTION.

It is unique—none like it that I know of, 4×5 , and made to order. It is $1\frac{1}{2}$ wide; the scallop is $\frac{1}{8}$ deep instead of $\frac{1}{4}$, and it runs *clear out to the V groove*. It is 5 inches deep, so is the fence. The $\frac{1}{8}$ scallop, or beeway, in the section and the $\frac{1}{8}$ post strip on the fence make a $\frac{1}{4}$ beeway when the two are put together; and this beeway runs *clear out to the side of the section*. Do you ask why?

In the old four-piece nailed sections we used to saw out of common pine lumber, the top and bottom bars were the *same width*, their *entire* length plump to the side-bar. They were better finished to said tops and bottoms, and fewer holes at the corners than can be had with the common scalloped section of to-day. One of the reasons your plain sections are better finished is you have gotten back to the old idea, which was almost a necessity in the four-piece section. In the common section, when the bees reach the end of the scallop where it *rounds out* they *round in* the comb, leaving a hole in the corner. Do you see? I told you this more than once before, but you did not heed. Yes, *my* section is a 4×5 , scalloped $\frac{1}{8}$ full length of both top and bottom. "It's a dandy too."

In filling a super, first put in a fence. This gives the "Petit idea" of allowing bees to pass up freely at the sides, etc. Then it is a row of sections and a fence, and so on till full, with a fence next the last side, and two springs put in to take up slack. One-eighth-inch cleats are on the inside of both super and brood-body, opposite frame ends. This makes a bee-space outside that first fence to start with.

THE HONEY-BOARD.

This, too, must be made to order. Look at that picture. See that a zinc strip is next each side-bar—not only this, but the

slats between zines are only about $\frac{7}{8}$ inch wide. I want the honey-board so the bees can pass right up the hive side with the least possible obstruction, and I want the whole honey-board with just as much zinc in it as it can have and yet be rigid. The slats I use simply and solely to prevent sagging. No further description of this is necessary.

The foregoing, together with the illustrations, I believe makes clear the hive I am adopting—have adopted, except the fence-separator part. The one I am using is not my ideal. I have invented both a separator and a machine for their manufacture, but have not yet gotten them into use. My separator will support the sections, yet sections and separator will touch only at section corners except at the separator ends next super end walls. There will be free passage of the bees in every direction through the super.

My reasons why are only partly given in the foregoing, and this article is already long. Very few people have succeeded with such a hive, and the reason is they do not know how. Such a hive brings in principles not much used and not understood; but when I have told *how*, I think most readers will see much of advantage in the hive and its system of management. My next will tell of what can be accomplished, and why.

ARE SECTIONS DETRIMENTAL TO THE HONEY MARKET?

Selling by the Piece and by Weight.
Concluded.

BY G. C. GREINER.

[As the reference to page 1119 refers to GLEANINGS for Nov. 1, 1905, it may be well to make a little explanation for a better understanding on the part of those who may not have this particular issue of GLEANINGS at hand. In that number I stated that, in order to make selling by the piece at all practicable, the honey should be graded so that all the sections in one case would be practically of the same weight. This would make it necessary to have perhaps three different grades in weight. The light ones could be put in one case; the medium in another, and the "fancy" in still another. With this explanation the reader will be able to understand more intelligently what follows.—Ed.]

In speaking of grading honey, page 1119, the editor hits my case exactly. I have on my bench three sections which I have set aside as grading samples while I was sorting and preparing my crop for market. The first is, with the exception of a loop-hole at each corner, all built out, is solidly hitched to the wood, and every cell is capped. It is about the heaviest I could find, and might be called an ideal fancy section. The second has here and there a few loop-holes, about all bordering cells are open, and some empty, and it would probably pass as a No. 1 section. The third is nearly all capped, and well braced to the wood; it has quite large openings on the outside, and belongs to the class of light-weight sections. This latter is the limit in regard to weight, which I sell at full price. The three weigh, as nearly as common scales would indicate, $17\frac{1}{2}$, 16, and $14\frac{1}{2}$ ounces respectively.

I try to sort my crop according to these three samples, not by actual weighing, but by the eye, with the assistance of my hand as scales. The object of making these three grades is not to sell at different prices, but to serve my customers alike as much as possible, and thus overcome in a great measure the unpleasant feature of selling by the piece.

Whenever I am on the road selling or delivering honey I always carry only one grade at a time. Whether I sell to the retailer by the crate or to the consumer by single sections, all get the same grade of honey. After one kind is closed out I take the next grade in the same way, so that the chance of selling different weights at the same time and in the same place is greatly reduced.

To gratify our conscience the question might be asked, "Why not sell these different weights at correspondingly different prices?" Well, this is the point where the shoe pinches, and where the impracticability of selling by weight comes in. If we had three fixed types, like our samples, to deal with it could be easily done, although approximately only; but we must bear in mind that our samples are the extremes, supposed to be the only ones of that weight among the whole crop. Any crop of section honey from the lightest to the heaviest flake, could be arranged in such a gradual progression that the difference between any two neighbors could not be detected by common scales. Where, then, should we draw the dividing line and jump from one price to the other? No matter where we break off, we should be compelled to charge different prices for practically the same weight of section, and that would never do if we expect to keep on the right side of our customers.

Any consumer will notice at once a difference in price, little as it may be, but not one out of fifty could see a difference between sections which we were selling at different prices unless they happened to be from the extreme ends of the line. Even the honey-producing expert is many times at a loss to know which grade certain sections belong to. So, on account of the slight and almost endless variation of the weights, the selling by weight would prove an extremely complicated affair, the difference being, in most cases, so little that neither the dealer nor the consumer would care to indulge in a pastime of this kind.

While taking this side of the argument in connection with the retail trade I am well aware of the fact that selling by the pound in larger quantities is not only quite feasible, but may give general satisfaction to both parties. Crates of 24 sections, sorted as above mentioned, will weigh, to express it in even numbers, 22, 24, and 26 lbs., according to grade—a difference sufficient in amount to pay for figuring up. However, to the producer it would be the same as selling by the piece. What he loses on one lot he gains on the other, and *vice versa*, unless he has one grade greatly in excess of the other.

But this is not the end. After this same

honey has been sold a few times by weight, and has reached the hands of the retailer, it assumes the nature of a ready-weighted package, and is sold by the piece to the satisfaction of all concerned. A great deal more could be said on this subject, but I will add only one more thought.

The neat and attractive appearance of our sections is held responsible for spreading the "Wiley lie," and, consequently, for the depression of the comb-honey market. Possibly there may be some truth in this assertion. What actual share of this crime our little sections are guilty of, I can not say. I have no facts to prove any thing positively; but whatever it may be, it scores one in their favor so far as I am concerned individually. The Wiley pleasantry does not hurt my trade in the least; on the contrary, whenever I am confronted with that artificial-comb-honey trash I am almost always sure of making sales. It is the best introduction I can wish for. It opens the way for a bee-talk; and whenever I can get people interested enough to draw them into a conversation on bees and honey I have generally secured permanent customers. I may not always succeed in convincing them that comb honey can not be manufactured, but it does not take me a great while to prove to their satisfaction that my honey is the real bee-product.

La Salle, N. Y.

BEEES FOR THE HONEY-FLOW.

How to Have Strong Colonies when They are Needed.

BY R. F. HOLTERMANN.

The ranchman in the far West sometimes experiences a winter of such a nature that much of his stock dies, and spring and summer come with large areas of abundant pasture but little or no stock to gather in the grass, assimilate, and turn into beef. Not only is the pasture needed, but the stock. So it is with the bee-keeper. Bad wintering and unfavorable conditions for building up the hive are powerful factors in reducing the honey crop and therefore increasing the cost of producing that crop. When I was a boy on the farm in the backwoods of Renfrew County, Ontario, I remember the early settlers, when short of hay or straw, used to feed the cattle brush—"browse" them. Toward spring, perhaps some died; others could not get on their feet, and had to be helped up; and while there was not much beef on them, lots of material for broth appeared to be in plain sight. This was 35 years ago. Times have changed in dairying and stock-raising since then. A farmer carrying on his business in that way could not survive long. Bee-keeping is still conducted on this principle by many. Stocks perish, or are so weak in the spring they take all the best part of the summer to build up, through improper conditions of hive or surroundings, that they give no return a very

small percentage of what they ought to give, and the bee-keeper does not get the profit he should. In this article the object is to take up

SPRING MANAGEMENT.

As I see it, large hives and the prevention of swarming give us more uniform colonies to go into winter quarters, and should give us more uniform colonies to come out. Then plenty of stores should be provided the autumn before. No matter what our opinion may be about spring stimulative feeding, we are, upon reflection, agreed, however little we may carry it out, that bees should be provided, not only with plenty of stores for winter or the season of non-production, but to give bees unstinted stores for brood-rearing during the spring, and to tide over the time when brood is reared but insufficient stores gathered. A good stock of bees, of *proper variety* and plenty of stores in a sheltered place, can do wonders in the way of increasing, even if left alone at this season. In fact, any one not skillful had better leave them alone. They may easily do more harm than good.

By "proper variety of bees" I mean a variety of bees that will rear brood in the spring, and carry the rearing of brood through gaps when there is nothing to stimulate them; more than that, bees that will feed the larvæ properly at such times. In this respect there is an immense difference in bees. In my estimation, laying aside the Cyprian and Holy Land bees, which have too many other objectionable features, Carniolan bees have a grand propensity in this direction, and for several years I have found bees 25 per cent Carniolan, and the rest Italian blood, very satisfactory. Careful observation with many stocks and varieties of bees show us an immense difference in the way bees treat brood. In times of activity some queens will deposit eggs, and the bees feed the larvæ; adverse circumstances step in, such as cold, non-pollen and non-nectar gathering, extracting the loose honey in the supers after a flow, and the bees destroy the eggs and young brood. Others feed the larvæ in a very indifferent way, and no doubt bees thus fed, like any other stock indifferently nourished, will not do as good work, will resist less cold winds, may carry a smaller load, live a shorter time, and be inferior all through. Bees of the above kind, occasionally stimulative fed, with could weather between, may and are likely to be worse off than if not fed at all. The vitality of the old bees is exhausted more rapidly than if left alone; and in extremely unfavorable weather, which, of course, rarely occurs, the bees lose or partially lose much immature brood and eggs.

There may be strains of Italian bees which can be made to do this equal to Carniolans. I do not know. Seeing the value of keeping fixed types in breeding I should like to keep varieties in their purity; but my ground is much like Dr. Miller's. If we can not get this in one variety, then mix.

Stimulative feeding is practiced much in

Germany and other European countries. It may be prejudice (I think not) because I was born in Germany; but in such a matter I value German opinion. They are a people who have distinguished themselves in research work in almost every line of agriculture. In apiarian discoveries they stand pre-eminent. They have discovered principles which have been developed and improved on this continent. They get down to close observation and investigation, spending, if need be, a lifetime upon the solution of a question, for which we have not the patience, and we think we have not the time, but which is, nevertheless, essential in the work of *investigation*, be that work carried on in Germany, England, Washington, Ottawa, or Guelph.

With a proper hive properly protected, plenty of stores, and the right kind of bees, I have found stimulative feeding a good thing when the bees, owing to the season, are not naturally stimulated. Open-air feeding is good with proper weather (mild) between natural flows. Bees must not get enough to store surplus. They must clean the feed up before the cool of the day. It must be sufficiently distributed, and accessible so they will not fight for it. It should be half water, half syrup, for they want diluted feed at that time, and it should never be honey or partly honey. Bruising honey on the hive-combs every few days is an excellent way to stimulate; but one trouble is that it can not be done when most needed. This is also true of outdoor feeding. When cold weather follows warm, and when the bees have eggs and young larvæ, is when I want to feed.

In connection with my queen-cell detector I have a small feeder to slip in the place of the detector. The feeder is filled through the end opening of the hive, and can be filled in the coldest weather. It brings food directly into the cluster of bees. The originality of this device will readily be seen when I say a patent on this was granted to me in the United States and in Canada in connection with my hive. This feeding must not be done when bees are almost flying. In cold weather it will not drive the bees out looking for more. Ordinarily the best time to feed is at the close of day. Let us remember that bees, during the broken weather, rarely if ever store much surplus; and if they do, it is only strong colonies that can ripen and protect it. Very weak colonies I would not feed to stimulate—only fair to strong, and in proportion to their strength. What is the difference next day between a colony which has, owing to a fine day, gathered naturally, and one which is fed toward evening of the same day? I can see none and find none. One is no more likely to leave the hive and hunt for honey than the other.

FEED THE HIVES YOUNG BEES.

Weak stocks I was determined to save. I would contract, spread the combs a little so more bees could cluster between the combs and keep themselves and brood warm,

and then give them, from strong colonies, young hatching bees. See the queen is not on the comb; shake the comb moderately so as to dislodge the old bees; put a smooth board in front of the weak stock, and shake the remaining young bees a foot or more in front, seeing that they walk into the hive for which they were intended.

Many a weak and dwindling stock carefully nursed by the bee-keeper is, however, not worth "house room;" is often robbed out, and leads to others being robbed, and would better be destroyed, the increase being better secured by the nucleus system and a laying queen later. When the brood-chamber, twelve combs, is full of brood, honey, and bees, then from these I take combs of hatching bees and give it to the next fullest colonies, *retaining the bees in the ranks of surplus honey-gatherers*. If I gave them to the weakest colonies the brood might be chilled, and their stocks might not be ready for the first surplus, and the bees be largely lost to me. So I go on getting a larger number of full colonies rapidly. In these strong colonies the empty combs are at once filled with brood, and more field-bees secured for any flow five weeks or more hence, or five bees three or more weeks hence. The weakest colonies are occasionally reinforced by young bees from strong stocks, as heretofore described. In this way stocks are greatly equalized, and yet the bees are almost altogether kept in the working ranks.

It must be seen that the bees, in seasons favorable for honey gathering, are not allowed to clog the brood-chamber with honey. If this is allowed, the strongest colonies may, for lack of brood-chamber room, actually fall behind stocks which, to begin with, were second class. Any stock which has eight frames of brood or more has a division-board put in it, and is supered when the flow begins, and the brood-chamber is enlarged only as they show symptoms of preparing to swarm, or other stocks do so, and it is necessary to take brood from these latter. By this system I get the fewest blank hives for the honey-flow, and have the best crop.

Brantford, Canada.

SOME RECENT STATEMENTS DISCUSSED.

The Importance of Shutting off the Light from Bees that are being Hauled.

BY A. E. WHITE.

IN GLEANINGS for Sept. 1, 1905, is an article by W. L. Porter on moving bees without closing the entrance. He says, after loading cover them with canvas. For many years I have covered my load of bees while moving. My wagon-box is tight, and has high sides, holding two tiers, of twelve each, of single hives. I cover them with blankets so as to exclude the light. In this way they will go safe with less ventilation, and they will also stand more than when not covered. If they find an outlet they will quietly cluster on the outside of the hive.

This is a safe way to move bees, and no doubt Mr. Porter has moved without closing the entrance; yet I shall always close the hive when I move bees.

In regard to moving bees, if they are in the dark they are more quiet. It is the light that keeps them excited. One year I lost several swarms by covering the top of the hive with screen wire, and leaving them open to the light while moving. They clung to the wire, and buzzed themselves to death.

STARTERS VS. FULL SHEETS OF FOUNDATION.

I have seen it stated in bee-papers that starters are better to use in some cases than full sheets of foundation in the brood-nest. I have not seen any reason given, yet I have read the statement many times. Now, will you or some one who thinks he knows tell *why* starters are better than full sheets at any time or in any kind of frame? Full sheets are surely much better for us here, and I prefer them to combs unless the combs are new.

FOUL BROOD—CAN BEES REMOVE THE INFECTION FROM COMBS CONTAINING DISEASED MATTER?

I was much surprised on reading the article on foul brood by Samuel Simmins, of England, in *GLEANINGS* for January 1. He surely can not expect any one who has had experience with foul brood to credit his concluding statement. Many years ago I lost 100 colonies from foul brood. I went all through and cut out every bit of diseased brood, buried it, and when the disease appeared again I cut again, but could not get rid of the disease. It appeared to be cured at times; but after a time it appeared once more. I lost the whole lot, and I am satisfied that only by giving new foundation, and getting rid of the old honey can the disease be cured. Mr. Gibson's article, which follows that of Mr. S., is not quite so radical. Did Mr. Gibson's bees clean out that rotten stringy mass? did they carry it out of the hives in their honey-sacs or in their pollen-baskets, or did they eat it up? Now, Mr. Editor, you say in a footnote to Mr. Gibson's article, if all such combs be removed, extracted, and the honey boiled, then you can see how, if the combs be given back, the bees would clean them up and remove the infection. Now, please tell us *how* the bees would remove the infection. We are liable to get foul brood here, and wish to learn all we can, if we can cure foul brood by simply extracting the honey. But do you think you could extract the foul brood? or do you think the bees would carry the diseased matter out of the hive? I suppose it is understood that bees will not uncap sealed brood.

I would dig a deep hole and bury the frames, honey, and brood. Last fall a man near Fallbrook, having his whole apiary affected with foul brood, sulphured his bees, then extracted the combs and set them out for his neighbors' bees to clean up. The bee-men in his neighborhood were much excited over the matter; and yet if there was

any truth in the articles mentioned he was doing no harm whatever. No one here can see why he thought it necessary to kill all his bees.

I have received great benefit from the A B C and *GLEANINGS*, yet I fear the articles written by Messrs. Simmins and Gibson may do harm, and your footnote makes the danger greater.

Lilac, Cal.

[I believe your argument in favor of a screen to shut off light from the bees while being moved or hauled is excellent; for I have always noticed that bees will cluster where the light is most intense, especially when confined.]

The main argument in favor of starters in place of full sheets is that of economy. Incidentally it has been urged that the effect of starters is to force the bees sooner up into the sections where there are full sheets of foundation, and where, also, there are bait-combs. With a good flow of honey a full sheet in the brood-nest may be drawn out in 24 hours. If the queen does not immediately occupy it with eggs, the bees are liable to put honey in it, while if only starters were given the work of comb-building below would be slower, and the work in the sections correspondingly accelerated. Understand that I am not stating this as my own argument, but an argument that has been presented in favor of starters.

In your comment on the articles by Samuel Simmins and Mr. Gibson you possibly overlooked the fact that it was urged that the colonies be made queenless for some 21 days. Bees, they claim, will clean house, cleaning their combs perfectly clean, possibly removing germs also if they have time enough. I am not a sponsor for the treatment recommended by Mr. Simmins; in fact, I do not subscribe to all the statements made by Mr. Simmins or Mr. Gibson, as shown by my footnote at the time.—Ed.]

NAMING BEES.

The Difficulty of Telling the Difference between Blacks and Caucasians.

[Some weeks ago we received three cages of bees from Mr. J. M. Davis, of Spring Hill, Tenn., accompanied by a letter asking that, for the purpose of experiment, we give the names of the bees as well as we could by looking them over in the cages. We were then to send them to some other queen-breeder, with a like request. After this brief explanation the reader will be able to understand the letters that follow.—Ed.]

Mr. J. M. Davis:—I am in receipt of your letter, with samples of bees. I suspect that one lot is Carniolan, another common blacks, and another Caucasian; but which are which is a little difficult to determine, as they are so nearly alike; but in my judgment they are as follows:

No. 1, blacks; No. 2, Carniolans; No. 3, Caucasians.

The difference between blacks and Caucasians is so slight from specimens that I have seen that it would be very difficult to deter-

mine which is which, and it will always be so unless our Caucasians are different from the average. I am mailing these cages of bees on to F. A. Lockhart, Lake George, N. Y., as he is the only breeder in the United States that has made a specialty of rearing Carniolans. We have no black bees in this vicinity, and have not seen them for years. I think he could come nearer determining, perhaps, which are Carniolans and which are the others than any one else.

Medina, O., Nov. 8. E. R. Root.

Mr. Root:—Your letter and the three cages of bees you received from J. M. Davis and forwarded to me are here. My decision is as follows:

No. 1, Caucasians, but not pure stock. I may be mistaken, as they look quite like our common brown bees with a dash of Italian blood. They are a trifle larger than the pure Caucasians. I could not judge their temper in a cage.

No. 2 was received in poor condition, the bees being all dead, and therefore black and shiny. I should say, however, that they might be pure black or German bees.

No. 3, I should say, contained Caucasian bees, and about as pure as the average Caucasians used in this country from imported stock.

F. A. LOCKHART.

Lake George, N. Y., Nov. 14, 1905.

Mr. Root:—Yours of Nov. 25 was received while I was in the West; and since my return I have been so busy I could not answer it. Cage No. 1 contained pure Tennessee brown bees, secured away back where there are no Italians, and are about as pure stock of this race as can be found. They have always had an occasional bee with a narrow orange band next to the thorax. This is usually quite dark orange. I have noticed this all my life. I am now 58. This band, as a rule, does not extend around the abdomen, but shows a splotch on both sides, rather high up.

No. 2 contained imported Caucasian workers taken from a cage sent me by Professor Frank Benton, secured twelve versts (about eight miles) inland from Gagry, which is on the coast of the Black Sea, Russia. They are of the Abkhaz variety, and, Prof. Benton writes, are of the gentlest of this remarkably gentle race of bees. I received another queen from him, mailed two days later from Tiflis, Russia, which he wrote was of the gray type. I have workers from both these importations, in alcohol.

No. 3 were workers from a Caucasian queen reared by Dr. Phillips at the government apiaries at Arlington. This queen was received last summer, and, at the time, I supposed was an imported queen, as Prof. Benton was to send me one as soon as some queens were received that they had failed to get last fall.

As soon as I saw her progeny I knew that they would be a dangerous bee to scatter indiscriminately through the country, owing to their remarkable resemblance to our native bees. If expert queen-breeders can not

distinguish them, how on earth can we expect the uninitiated to know when they have pure stock?

One trouble will be that inexperienced men who think nothing of injuring their neighbors may buy them in order to have a bee that they have no reason to fear, and rear them near breeders of pure Italian stock, greatly damaging the Italian race after the bee-keepers of America have spent thousands of dollars importing and building up this valuable race of bees. I am decidedly in favor of the government keeping Prof. Benton in the East, looking up new races of bees; but let us be careful how we scatter them broadcast over the country, to the annoyance and detriment of men who have spent much money and valuable time in introducing and improving the bees we now have that we know to be a superior race.

There are many points that could be brought out along this line, that we as breeders should bear in mind. If I know that a breeder of Italian bees is near a would-be purchaser of Caucasians, and that said purchaser is inexperienced, I will decline his orders, as I know this would be to the detriment of the party who had already spent his money and time in establishing a valuable race of bees.

I bought the first Langstroth hive and the first Italian queen sent to this county; and during the 34 years since then our bees have been greatly improved for many miles away. Now, suppose some fellow who cares but little for his neighbors should place only one colony of these gentle bees near by me, just to get a paltry bucket of honey. Why, a wave of black blood would start out across the country, and there is no telling the damage it would do, and that with a race of bees that we have no positive proof yet is at all suitable to our country.

By all means let us strive for the very best; but be careful how we distribute these new races until we know that we have a better one than the Italian, which, in my opinion, will be hard to find. I should like to have these new races tested by experts, if possible, before being sent out broadcast. This was my intention in offering them last summer. I will put a word of caution in my 1906 circular, and I believe we should all do so. The dark leather Italians sent out by the Department are a very valuable bee, and will be the bee for the honey-producer.

I hope Prof. Benton will succeed in getting *Apis dorsata*, but I doubt their standing our climate.

J. M. DAVIS.

Spring Hill, Tenn., Dec. 6, 1905.

[We are quite in sympathy with the statement made by Mr. Davis, that these queens should not be sent out indiscriminately until we know something more of their qualities aside from the gentleness of their stock. All the bees we have of this race are on an island in Florida, in charge of A. I. Root, where we are testing them. We do not expect to sell queens of this race until we can test them on the island.]

Some have questioned whether or not the Department at Washington was going to do damage by sending out queens of this blood. I do not think we need to apprehend any trouble from that point; for Dr. Phillips plainly stated that these queens will be sent only to responsible breeders who will agree to conform to certain conditions. There will be no excuse for such a breeder "tainting" or "contaminating" his locality if he keeps his Caucasian queens clipped, and perforated metal over the entrances of all Caucasian colonies.

But you ask, "How about the queen-breeder's customers?, some of them, perhaps, careless?" There is danger here. How this can be overcome I do not know; but we must remember that no disaster followed the introduction of the Eastern races of bees, and yet some of them are very undesirable.

But it is significant that the Caucasians look so much like the black bees that even breeders are confused. Yet this is not at all strange; for when Cyprians were first introduced, there were many who could not distinguish them from light colored Italians. It is well known, however, that any one who is reasonably familiar with the two races has no trouble in drawing the distinction.—Ed.]

ALEXANDER'S CURE FOR BLACK BROOD A SUCCESS.

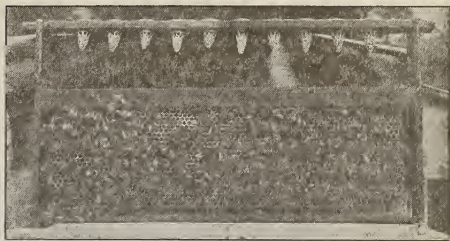
BY PERCY ORTON.

You are not mistaken as to the value of Mr. Alexander's method of curing black brood, as I have used practically the same method for the past two years, as I will now describe.

In 1904 I had five colonies that were badly affected with black brood. These combs were given to them in 1903, and were full sheets and wired. I disliked very much to melt them up, as they were such perfect ones; so I thought I would shake No. 1 on to full sheets of foundation, place an excluder of zinc on top of No. 1, and tier up the 50 affected combs on top of hive No. 1 and let the brood hatch out; after, to fumigate the combs and give back to colonies and see if I could save them. I left them on top of hive No. 1 for a month (from pure slackness). When, one day, I looked the combs over they were all cleaned out and the brood-cells shone like a bottle. I decided to give them back to colonies, and not fumigate. I did so, and as healthy brood hatched from those combs that were affected as you ever saw. I was afraid to mention this to any one, as I expected to be hooted at, at that time, so I got two other colonies that had black brood the past summer. I went through the same operation, and the brood that was hatched in the affected combs after treatment was as healthy as was the first.

I think Mr. Alexander's method the best, as you secure all the unhatched brood and a young queen in the same hive.

I send you also a photo of ten queen-cells that were raised between brood-combs that, two years ago, were affected so badly with



black brood that I could not get one queen-cell to hatch. This proves that the combs are free from the disease at present.

Northampton, N. Y.

[This is the first testimonial proving the efficacy of the Alexander treatment for the cure of black brood. The whole secret of it seems to rest in giving the bees sufficient time to cleanse and polish thoroughly those cells ready for the queen to lay in.—Ed.]

THE ALEXANDER METHOD OF BUILDING UP WEAK COLONIES.

Will there be a Loss of Returning Bees when the Upper Hive is Put Back? What Becomes of the Drones?

Mr. Root:—I am greatly interested in Mr. Alexander's article on strengthening weak colonies by placing them on the top of strong ones. I wish, however, that he would incorporate answers to two questions in his next or a subsequent article.

First, in the event of the upper colony rearing drones, as it certainly will do if growing strong by the treatment, what will happen to these drones and to the colony which rears them? All openings are to be closed so that the only way of exit for the bees of the upper colony is through the queen-excluder and down through the lower hive-body. In brief, this means that the drones above the excluder will never get out. They will die in the upper hive. Will not harmful results follow from that?

Second, when the upper colony is strong enough to take care of itself, and is set back on its old stand or upon another stand, will not its loss of bees, occasioned by the field-workers returning to the double-hive location, weaken it down to about the same condition it was in at the start?

I hope Mr. Alexander's plan solves this troublesome problem, and I wait with interest to read his further elucidation of it.

Altoona, Pa., March 26.

H. H. S.

[Knowing that many would appreciate an answer from Mr. Alexander on this point we sent this question to him direct, and he replied as follows.—Ed.]

In reply to H. H. S. and many others regarding our method of caring for weak col-

onies shortly after taking them from their winter quarters, I can only repeat what I have already written upon this subject; that is, after they have a little uncapped brood set them on top of a strong colony with a queen-excluding honey-board between, and close all entrances except what they have through the excluder. This we do about five days after they are taken from the cellar, and they seem to locate again so but few if any are lost. The very few old bees that may be lost by this method are merely nothing compared with the gain in bees after both queens have been laying three weeks or more. This is, without any exception, the best and most practical way of caring for those little weak colonies in early spring that has ever been made public.

Another question that many are asking is, "What becomes of the drones that are shut up in the old hive when increase is made?" As I recommended in one of my former articles, first, we have but very few drones in our apiary. I never thought they added much to the surplus honey of a colony, and have often wondered why some beekeepers rear millions of them in the place of workers; and for that reason it doesn't hurt our feelings if we can trap them in an upper hive until they are dead. The bees usually pull them to pieces and drag the most of them down through the excluder. The man who now allows his bees to rear thousands of useless drones is but one very short step in advance of the man who keeps his bees in box hives. I am sure we secure at least three tons of honey a year more than we should if we allowed our bees to rear drones as some do. In the first place, it requires far more food than it does to rear workers; and then when you consider the advantage of having nearly all the bees in a hive producers instead of one fourth or more only consumers, it counts much in securing surplus. So far as we can prevent we allow only one or two colonies to rear a few, which I think is all that is necessary for any apiary.

E. W. ALEXANDER.

Delanson, N. Y.

[I wish to indorse as strongly as possible what Mr. Alexander says on the subject of rearing useless drones. I would add further, don't let your bees have drone comb in the first place unless you wish to rear drones for breeding purposes. In this connection, see the last paragraph of "Conversations with Doolittle," on another page.—ED.]

EARLY SPRING MANAGEMENT.

Timely Advice on what Preparations to Make.

BY W. R. GILBERT.

The few short hours of warm weather we have in early spring induces bees to leave their hives for a good cleansing flight, and much they make of the opportunity. The myriads of bees issuing from some of the

hives shows that inside they have not been inactive, though unable to fly abroad; but when the early flowers are in full bloom, then the bees become really busy and collect what nectar and pollen such limited breadths of bloom permit.

If bees, which at that time are badly supplied with food, are to depend upon outside sources till the extensive tracts of flowers bloom late in the season, they will indeed do badly throughout the season. About the time we are speaking of is the time for helping bees with candy or syrup. The former takes more time for preparation, but it has this advantage—it provides the bees with food that can be taken only slowly, and can not, therefore, be stored in the combs to such an extent as is often done when they are liberally fed with syrup.

This is the time, too, in which to move bees to fresh sites that are some distance from the present apiary. Breeding has then commenced; and should the weather be mild the bees get just that disturbance in the act of removal that stimulates them in the work they are now performing inside the hive.

All that need be done now to keep the bees secure inside is to nail a piece of finely perforated zinc over the entrance, and drive two or three nails through the plinths at the side into the floor-boards; and to save them from a lot of bumping, place them upon a good layer of straw.

Let them have a day to settle down, and get a little accustomed to their new surroundings, and then change them into a fresh hive, giving them clean quilts, and plenty of them, and a feeder if required.

While moving the frames from one hive to the other, destroy the cappings of the cells containing honey around the brood in the middle frames. Others may be similarly treated after a few days.

While breeding is progressing, warmth is necessary; therefore see that the tops of the frames are well covered, and that only a small entrance is allowed.

If the supply of pollen is found to be short, give some pea flour in an old skep or box, upon some small shavings. A little honey will attract the bees; and while they require this substitute for natural pollen they will fetch it.

Orders for bee-appliances, foundation, frames, and sections in particular, had better be placed at once to prevent loss of valuable time, when they are really wanted for use in the hives.

If excluder zinc is used between the brood-chamber and supers, the frame in the upper apartment may be filled with drone comb, or, rather, drone-sized foundation, from which the bees will build comb of drone-cells.

Obtain a supply, too, of wide metal ends, unless strips of wood are nailed on the ends of the frames to provide the distances; but whatever distance is allowed, let it be more than that between the brood-combs, or uncapping for extracting will be slow and unsatisfactory work.

Medicine Hat, Manitoba.

HONEY-BEES AND CUCUMBERS.

How a Shrewd Old German Places Bee-hives in his Cucumber-Hothouses, and, by Making Bees Fertilize the Cucumber-blossoms, give him a Big Crop at a Time when Otherwise they could Not be Had.

BY D. EVERETT LYON, PH.D.

"The one great mission of the honey-bee is fructification: the honey she may store is to interest us in her propagation."

Up-to date horticulturists have known for years that the presence of bees among the blossoms means an increase in quantity and quality of fruit.

In some sections there has been objection raised to bees by fruit-growers who declared that they were stinging the fruit.

Those who have made a study of bees know full well that the bee has no implement with which to open a sound specimen of fruit. The hornet and wasp, both of which have sharp jaws with which to tear old bark from trees and kindred substances with which they build their nests, will frequently bite a grape, a pear, or a peach; and because a honey-bee is seen sipping the juice that runs, some fruit-growers have declared them enemies when the reverse is the case.

One has but to watch the busy fellows as

they work from blossom to blossom, to see that, in pollenizing fruit, they are the greatest of benefactors. Take, for instance, an apple-blossom. We find in it the stamens with their corresponding anthers. While it is true that the winds will, in a measure, carry the pollen from the anthers to the stamens, yet at best it is imperfectly done.

The body of a honey-bee is covered with a heavy down that plays a very important part in this respect. Of course, the bee unconsciously does its work of fertilizing blossoms, its prime object being to secure the nectar secreted in the corolla; but as it buries itself deep in the blossom it carries on its downy body the fertilizing pollen, which is transmitted to the stamens.

Jean Ingelow noted the little fellows coated with pollen, and wrote:

O velvet bee! you're a dusty fellow;
You've powdered your legs with gold.

No State, perhaps, produces more apples and grapes than does New York, and perhaps in no other State is bee-keeping carried on so extensively. The connection between the two, therefore, is manifest.

I remember reading of a section of California where cherries were produced in enormous quantities, and incidentally bees were kept by some who were not engaged in the production of fruit. For some reason a quarrel arose between the bee-keepers and the cherry-growers, who claimed the bees



EARLY CUCUMBERS GROWING IN A GREENHOUSE BECAUSE OF THE AGENCY OF BEES.

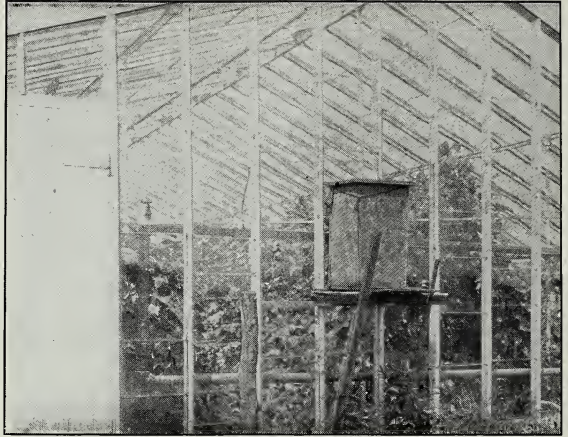
were stinging the fruit, with the result that the bees were shipped away. In a few months the cherry crop began to dwindle, and almost fail; and when the growers met together to consider the cause it was found that, with the sending away of the bees, the crop had begun to fail.

There happened to be one or two wise heads in the convention, who surmised the cause; and as an experiment the bees were brought back, with the result that the crop went back to its former proportions, thus showing the close relation between bees and fruit.

What is true of fruit-blossoms is also true of many others, chief of which is the cucumber. There are two distinct kinds of blossoms upon a cucumber-vine — the male and female; and in order to get fruit the pollen must be carried from the male to the female.

During the summer, when cucumbers are grown out of doors, bees in the vicinity kept in hives, or living wild in old trees, will fully accomplish the purpose. When it comes, however, to raising early cucumbers in a hothouse, when the vines will be blossoming before the bees are aflight, one is confronted by a serious proposition.

Mr. J. F. Becker, of Morganville, N. J., found that, if he could get a crop of cucumbers grown in hothouses so as to get them to market before those grown out in the

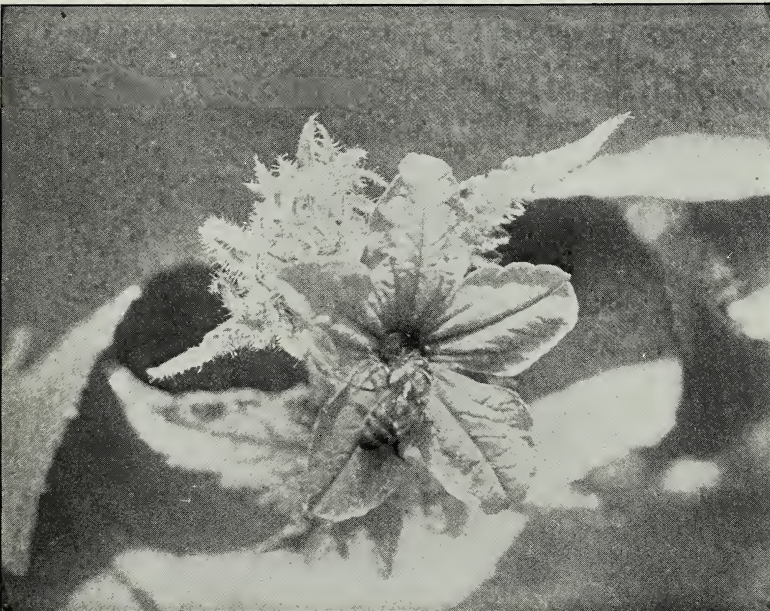


INTERIOR OF CUCUMBER-GREENHOUSE; HIVE WITH ENTRANCE INSIDE.

field should arrive, he would be able to command a splendid price for them. After careful thought he determined to try the experiment of placing a hive of bees in each hothouse to see if they would pollinize the vines. Hives with strong colonies were bought, and placed in each end of each house so that the bees could fly out into the house from one hive-entrance or out of doors as they preferred. The writer visited the hothouse during April, when the blossoms covered the vines, and the noise of the bees could be distinctly heard as they went from

flower to flower. So thoroughly did the little bees do the work required, that, with few exceptions, healthy cucumbers formed at each female blossom.

The crop that followed was enormous both as to size and quantity, some specimens being a foot long, and as much as three inches in diameter. Not only were the cucumbers fine in appearance, but especially luscious were they for eating. So thoroughly did



CUCUMBER-BLOSSOM WITH A BEE ON IT, CAUGHT IN THE ACT.

Mr. Becker succeed that he determined to go in on a larger scale, until now he has eight hothouses about 300 feet long by 50 feet deep, all steam-heated, with a force of about fifteen men to manage them, all growing cucumbers.

Lettuce is raised in the houses from October to March, the cucumber-vines not being set out until about the middle of March. The vines are started in hotbeds in the houses; and when set out in the houses they are in most cases two to three feet in length, with buds just starting.

Heavy steel wire is stretched on poles, and forms a support for the growing vines that fairly fill the house, as, year after year, they produce several hundred barrels of cucumbers, and that at a time when the prices they command are big.

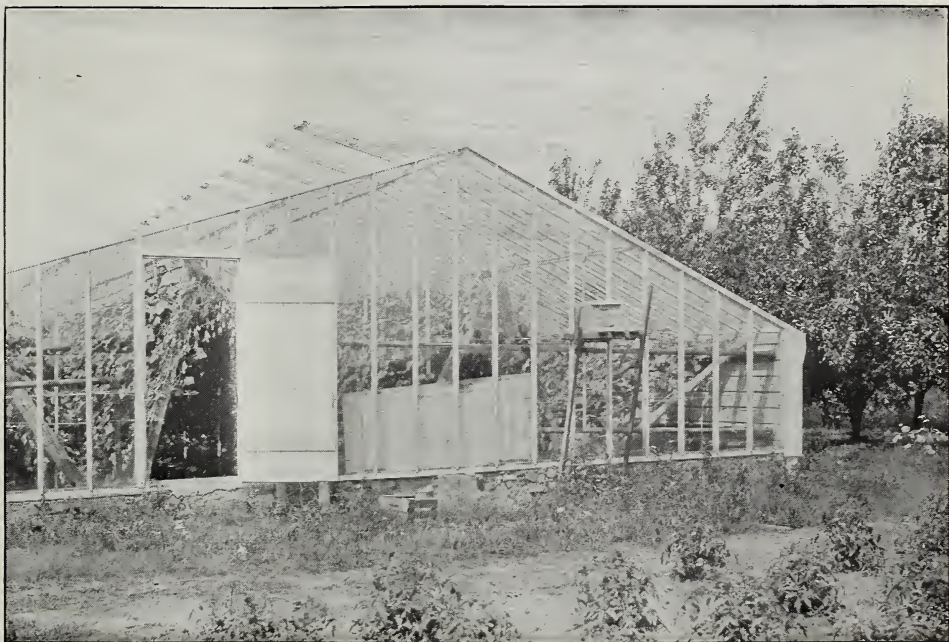
Thus year after year this shrewd old German makes the bees help him produce early cucumbers which, without their help, would be impossible. It is, therefore, very evident that all who grow fruits and certain vegetables should be sure that there are bees enough in the neighborhood to insure the proper fertilization of the blossoms.

HOW TO PRODUCE MORE HONEY.

A Plan for Materially Increasing the Crop.

BY A. K. FERRIS.

This subject is so broad, and so many details enter into it, that I will give in this article only a few hints as to how we may in-



ONE OF J. F. BECKER'S GREENHOUSES WHERE THE BEES FERTILIZE CUCUMBER-BLOSSOMS.

There is, however, a pathetic side to the case; and that is, the loss of the bees. After the little fellows fly about the house from blossom to blossom they fail in most cases to find their hives, and hundreds of them can be seen bobbing against the glass roof of the house, trying to get outside.

It doesn't take much of this to put them out of business, and so we find hundreds of dead bees on the floor which could not get to their homes. This being the case, Mr. Becker is compelled to buy new hives each year for his houses; but as this is merely a matter of a few dollars' output for a return of many hundreds of dollars, the item is looked upon as one of necessary expense.

crease the yield from our present number of colonies.

In localities where the flow is from buckwheat, goldenrod, and other medium and late flowering plants, the keeping of more colonies run on the "let-alone" method will, no doubt, be the very best way to secure a larger yield; but in the North, where the flow is early, the more intensive methods are better, as I have proved, for colonies so operated have given a yield from two to nine times as much as those run on the "let-alone method."

To secure more honey from a given number of colonies I prepare a double hive by placing a $\frac{3}{8}$ -inch division in the center of a ten-

frame hive, thus dividing it into two five-frame divisions. To the top of this division I tack a quilt that it may be thrown back from either side so as to leave either set of frames easy of operation. If the hive-body has a tight bottom on it I place a four inch

making two five-frame colonies in one hive-body, each having a queen with only a $\frac{3}{8}$ -in. partition between them. Feed this prepared double colony all the sugar syrup or good honey it will take, and winter in a cellar or special repository. Here is where

No. 2 is better; for when the bottom is removed there is still the wire screen, which keeps the bees from going from one side to the other, and excludes mice and rats, still giving perfect ventilation from the bottom.

About the first of March here at Madison I bring out these colonies and place them on their summer stands. The first nice warm day I look them over to see that each has a queen, uniting all that are queenless. If any are reduced in bees enough I remove a comb or two of honey and slip in a regular division-board follower, as bees will not cluster on the outside of a board as they will on a comb. In this respect a division-board is better than a comb for weak ones.

When the *strongest* of these five-frame divisions have some brood in all five of their combs I go through the whole yard again,

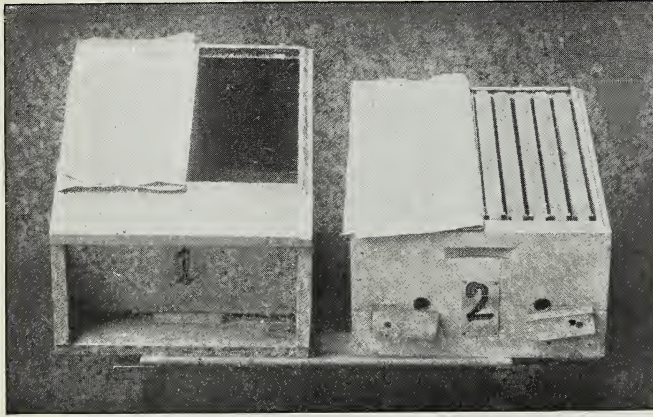


FIG. 1.—A TEN-FRAME HIVE ARRANGED ON THE FERRIS SYSTEM.

block the thickness of the entrance in the middle of the long entrance, making two entrances so that each five-frame division has an entrance of its own. As this four-inch block is shoved into the division-board it stops all passage of bees from one side to the other. See hive No. 1 in illustration.

Another form which I like better is to take a full-depth extracting-super, putting a $\frac{3}{8}$ -inch division in the center and tacking a wire screen, of small enough mesh to exclude bees, on the bottom. Bore two one-inch auger-holes in one end for entrances, with a button one inch in thickness over each, that they may be closed as much as desired. It also gives a one-inch alighting-board for the bees. See hive No. 2 in illustration. Tack the quilt on the same as for above. Now we are ready to transfer the bees into either of these hives we have prepared.

In September, if the honey-flow has ceased, I take a good strong ten-frame colony and transfer it into this prepared hive, giving it another queen, thus



FIG. 2.—A CLOSE VIEW OF COLONIES MANAGED ACCORDING TO THE FERRIS PLAN.

changing ends with a comb of brood in each so as to secure brood the full length of the frames. From the strongest I take out a comb of brood (I prefer hatching), and give it to the weakest ones, in this way equalizing all.

At this time I take out the division-boards given the previous visit, returning either empty combs or combs of honey as their needs demand.

When a majority have some brood in all five combs I take two hives and set them in place of each double colony with their entrances corresponding as nearly as possible to the double colony. Transfer each queen and the frames into the new hive, and give five more frames of either honey or comb as their needs demand. These may be given all at once, or a frame or two at a time, just as long as they receive room and food enough so that brood-rearing will go on at a rapid rate. Whenever these colonies need more room, give it until the flow is expected in a day or two.

At this point, if I wish no increase I destroy both queens in these two colonies, and in one or two days unite them, stacking one story above another, giving either a ripe queen-cell or young laying queen previously reared from my best stock, and confine her by a queen-excluder to the lower story, which I have arranged with five frames of brood — mostly the young larvæ — and five sheets of foundation or empty comb, alternating them. This is as I arrange them when run for extracted honey. If I wish increase I take one good frame of hatching brood and adhering bees with their queen, placing them in another hive, giving at first a partly filled comb of honey and another empty comb with a division-board follower, contracting the entrance to a one-bee space. These nuclei will build up to good strong colonies for wintering, if room is given as needed. In this way you get two nuclei, each having a laying queen and eighteen or more frames of brood and bees at the right time to secure a surplus from clover or basswood.

By giving a ripe queen-cell or young laying queen to the large queenless colony I have never had one swarm. However, I would remove all other cells at the time of giving a queen or cell. This method, slightly modified, could be adopted for comb honey, though I have always considered it more profitable to produce extracted.

Figures 2 and 3 show colonies the 17th of June, 1905, that yielded from one hundred to two hundred pounds per colony this poor season, when the average in the vicinity did not exceed thirty pounds; and nine colonies, the nearest to me, run on the ordinary method, did not yield as much surplus as my poorest one run on the above method.

The secret of producing more honey lies in being able to produce more bees at the *right* time and of the right kind rather than the keeping of more colonies run on the "let-alone" method, as some have advocated.

The foregoing is the method as adapted to the ten-frame hive of standard style. In another article we will describe a hive better adapted to this two-queen system.

Madison, Wis.



FIG. 3.—PART OF THE APIARY OF A. K. FERRIS.

BEES AND POULTRY COMBINED.

The Success of Each Depends Upon the Care Given.

BY A. A. ZIEMER.

As I am deeply interested in bees as well as fancy poultry, and kept both with great success for years, I must say that the article by Frank McGlade has held my attention more than any other in that number. The pictures were studied closely, which, as he says, were not overdrawn — probably not; and if they were not, it surely does not look as if there were the right man behind to give the birds their care. The way they are tearing around him it looks as if they were kept on a fast for a week or two.

Now, I don't quite agree with Mr. McGlade the way he runs down the busy old hen that keeps laying right along in all parts of

the world if she is cared for; so I can not let this pass by without replying to same, as I am keeping both bees and poultry, and always like to boost both and run down neither. I have kept bees for the last ten years, and could not be without them any more, as they have proven most profitable to me. I will not go into details and give any book accounts, but I can say that my bees have averaged \$10 per hive profit, and I can give Mr. McGlade credit for boosting the bees. They surely deserve it; but I can not say that the work is play compared to chicken-raising—nothing of the kind. I am sure there is enough of it in both lines, if they are cared for the way they should be, for everybody knows neither bees nor chickens will thrive well for a song. I will admit that there is enough work in the chicken business to keep one hustling all the time. In the winter we haven't so much work with bees as chickens. Chickens have to be cared for more in winter in order to get the best results in winter eggs; also fitting some of the birds for the show-room, as everybody knows that blue-ribbon winners hardly ever grow around the woods; so there is always something to look after, especially in yards where there are more than one variety kept.

I am a crank on buffs. I tried nearly every thing that wears buff feathers, and each variety. The Rocks, Wyandottes, Leghorns, and Orpingtons, are proving a very successful bird to me, laying their store of eggs all the year round, never stopping for the coldest day, as the mercury often falls to 20 below zero in this part of the country. Of course, these hens are cared for, and no one should expect the busy old hen to lay unless she is cared for.

I am sure I could not say a word against the busy hen, for she deserves the same praise as the busy bee, and I think that every poultry-keeper agrees with me here. If not, why don't they all do as Mr. McGlade did—load them up and haul them to Columbus, which, I am sure, they would, and I myself wouldn't hold on to them very long if they turned out the way Mr. McGlade is speaking about. But almost every poultry-keeper knows that there is the almighty dollar back of the busy hen each year; yes, and just a little more, sometimes, in some of these fine specimens of thoroughbred pullets and cockerels. No, I think when it comes to giving advice on either bees or poultry as to which is the more profitable, I say both, every time, and think every bee or poultry keeper finds, if they have care and right management, in both lines, each will give its share of profits; at least I have found them a winning pair, neither interfering with the other.

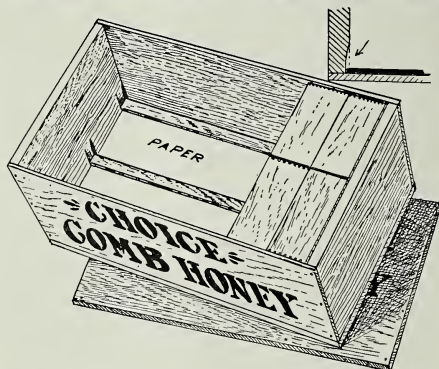
Waltham, Minn.

[Our readers may be interested to know that I am just starting in the poultry business in a small way, with the view of testing some of the ideas advanced by some of our bee-keeping poultry-men. Going to make a mixed bee and poultry journal? Oh, no! GLEANINGS will always be a bee paper. —ED.]



A COMB-HONEY SHIPPING-CASE WITHOUT GLASS.

I am sending a shipping-case which Mr. L. A. Aspinwall, of Jackson, gave me. The two things different are, of course, the no-glass feature and the manner of putting the no-drip sticks in. While in Jackson, Mr. Aspinwall had me talk with a number of his grocers, and, almost to a man, they said they would just as soon have the cases without the glass, and some of them now prefer them without the glass. The reason they offered was that their attention was called by the stencil-marking on the front, and that they were much more apt to ask to see



it, and thus give the grocer the opportunity to talk with the customer, where, if it was in plain sight, the prospective customer would look at it and pass on. They also mentioned that, so much of their trade was by phone, it little mattered. The difference in price would also be a considerable item. Mr. Aspinwall also suggested, that a case after that pattern, only a one-row ten-section case, would be a fine family size, especially for the man who sells ten sections for a dollar.

E. M. HUNT.

Bell Branch, Mich.

[The shipping-case here shown was exhibited at the Michigan State Bee-keepers' Association convention at Jackson, and was quite favorably commented on by the members present. The freight classification puts honey "in glass" as first class, and that "in wood" as second class. When this tariff was first printed, some of the roads were inclined to consider that all comb honey in shipping-cases with glass front was in glass, and, consequently, the freight rate was pushed up one notch; but after considerable explanation we showed that, evidently, such

classification referred to honey in *bottles*; that comb honey in a shipping-case with glass fronts ought to go as second class because the percentage of glass was very small to the amount of wood. All the railroads, I think, now accept shipping-cases

would not be just as good. If the freight-handler can not read, he ought to be bounced from the pay-roll. Shipping-cases with glass fronts have been broken into, and the fine cakes of honey despoiled by some big fingers, time and again. The Aspinwall



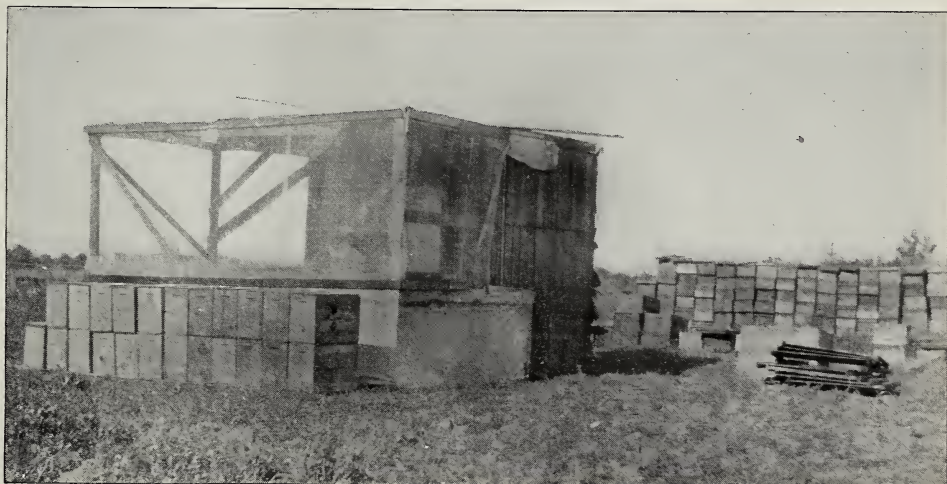
A HIVE-STAND TO GIVE FOOT ROOM; SEE NEXT PAGE.

with glass fronts as second class. But the bee-keeper must not make the mistake of having such honey *billed* "in glass" or else it will go at first-class rates.

The Aspinwall case is a very unique one; and if the discrimination against glass fronts

case would prevent any thing of this kind.

The arrangement of the no-drip cleats in mortises or slots in the ends of the case is very unique. It could not, however, be very well applied to a glass-front case showing



A CHEAP AND SERVICEABLE EXTRACTING-HOUSE.

had continued the all-wood case with the lettering would have been the solution.

The all-wood case can be made considerably cheaper, and I do not know why it

four sections six deep. But where the cases are two-row, like the sample here shown, there will be no trouble about mortising for the cleats.—ED.]

VENTILATION UNDER HIVES; DIFFERENCE IN LOCATIONS; SEE PRECEDING PAGE.

I am mailing you a photo of one of my apiaries. The hives are mostly eight and ten frame Dovetailed; also regular and some modified Langstroths. The hives in the single rows back of those in pairs are the old stocks, the swarms having been set on the old stands. The stands themselves consist of almost any thing that comes to hand in an outyard; but I very much prefer those made of 2x4 studding standing edgewise at front and back, and held together by two four-inch boards nailed on top. This raises the hives to facilitate proper ventilation, and allows the feet of the operator to extend under the hives when lifting heavy supers — an advantage by no means insignificant.

The stones seen lying upon the hives might be dispensed with in a home yard, but are necessary when the bee-keeper visits the yards only occasionally. They insure against wind and sun and the rubbing of stock.

The past season the apiary shown yielded a full crop, while in the other two yards less than half a crop was secured. So much for location a few miles apart in the same season.

L. M. GULDEN.

Osakis, Minn.

A CALIFORNIA EXTRACTING-HOUSE; SEE CUT ON PRECEDING PAGE.

I am sending you a picture of my extracting-house. As you will see, the lower part of the wall is made of canvas 3 ft. wide, while the rest is of mosquito-netting 5 feet wide. The darker place is where the extracting is done. The roof is constructed of sheeting.

A. J. HESSE.

Merced, Cal.

SWEET-CLOVER SEED; A BEESWAX RELIC.

Mr. Root:—Since the sweet-clover article appeared on page 1193, Nov. 15, 1905, I have received inquiries for seed. Some I answered by mail, but think this a better way, as there may be others who would be benefited. I sowed and gave away all the seed that I saved this year, but it can be bought of almost any large seed company, such as James Vick's, Rochester, N. Y.; John A. Selzer, Lacrosse, Wis., or Portland Seed Co., Portland, Oregon. In case one can not procure seed of the seed companies I shall be pleased to furnish small quantities by mail next year, free of charge, to bee-keepers only, if they will pay for the mailing.

Sweet clover is not a weed, but, on the other hand, is a forage-plant, and will not become troublesome in cultivated land. It thrives best on waste land, in fence-corners, along ditches and stony land. Too much can not be said in its favor as a honey-plant.

Some 15 years ago I saw an article in GLEANINGS about the beeswax ship found near Nehalem, Oregon. A few days ago I was in the city museum, Portland, Oregon, and while there I saw a part of the ship—about 75 or 80 pounds of the wax, also some

of the candles, one of which still shows the wick, which is charred at the end. The large pieces of wax have Latin characters in-



OUTDOOR FEEDING; SEE ARTICLE BY LOUIS SCHOLL, ON ANOTHER PAGE.

scribed on them. There is considerable data or history in the museum concerning the ship and the wax.

JOS. EGGE.

Willamette, Oregon.

[We should be glad to have you secure, at our expense, a good photo of the beeswax curio you describe. Be sure to take in the lettering. This must be a very interesting specimen; and any further information that you can add to what you have already written will be appreciated. May we not have the pleasure of hearing from you further with a good photo? Employ a good artist, and we will pay any reasonable expense connected with it.—ED.]



360 COLONIES IN ONE YARD; SEE ARTICLE BY LOUIS SCHOLL.

BEES TRANSFERRING LARVÆ; WEAK COLONIES.

I gave a queenless colony a comb containing young larvæ. Next week I found that bees had built two cells in the next comb. My partner says he did not change nor move the combs. Do bees transfer larvæ?

While my colonies are all right, there are four which are always weak, though I help them with brood-combs. There is no foul brood nor worms, but neither activity nor honey. What can I do to get ahead with such colonies? A. B.

Manzanillo, Cuba.

[I can not recall just now whether we have had any reports showing that bees have actually moved larvæ from a worker into a queen cell; but I know that we have evidence showing conclusively that the bees do move eggs in this way; and I do not know any reason why a young larva could not be moved as well as an egg.]

In the case of the four weak colonies, if they continued to be weak year after year I would pinch the heads of the queens and introduce better stock. If the queens are surely all right, reduce the four down to two, or even one by uniting if that be necessary to give them the proper strength. A colony, to do much in honey, must be fairly boiling over with bees.—ED.]

HOW CAN COLONIES BE PREPARED FOR A VERY EARLY HONEY-FLOW?

On page 1237, 1905, Mr. Alexander tells how to get the bees ready for a honey-flow that comes after July 4. Will he or some other man of experience tell us how to get the bees in the best condition to gather the honey from a flow that begins June 1 and ends about July 15, little or no honey after that date? and how to get queen-cells the first part of May; whether to make increase before, during, or after the flow, to get the most honey, and leave the bees in the best condition when the honey-flow stops? That is what Orange Co., N. Y., calls for.

Would the 60-lb. can (hanging feeder) you described last fall be good to use in spring as a stimulative feeder? Mr. Alexander puts weak colonies on top of strong ones to build them up in spring. How does he separate them to equalize the bees and prevent loss of uncapped brood? Last summer I tried his way of making increase. I like it the best of any plan I have tried. How do the large producers of extracted honey get the honey out of the cappings in good condition to sell? Melting the caps with the honey in them, with a solar wax-extractor or fire heat, darkens the honey and injures the flavor, and is of no benefit to the wax

New Hampton, N. Y. E. D. HOWELL.

[In a series of articles given by Mr. Doolittle he will cover the very point concerning which you inquire, probably in the April 15th issue, and I would, therefore, refer you to that method.]

The outdoor feeder, or the hanging-square-can principle, could be used provided the weather were warm enough. In early spring there will be a good many cool days, and a good deal of the time the atmosphere would be too chilly for the bees to do much in gathering syrup from a feeder outdoors. Better feed in the hives that need it.

Mr. Alexander has already described, or will soon describe, his method of dividing those doubled-up colonies.

The best way to get honey out of cappings is to let them stand for several days until they can drain dry. You can hasten the process somewhat by putting them into a German wax-press and squeezing them cold; but in so doing you will be liable to find honey in cavities formed by the cappings being pressed tightly together.—ED.]

SHALL WE SPRAY WHILE THE TREES ARE IN BLOOM?

The above heading is a very important subject, and especially so to the bee-keepers in some localities where spraying is practiced at that time. Bee-keepers should look this matter up now before the time comes for spraying, and try in some way to prevent it instead of telling the editors about their bees being poisoned by spraying. I sent for some catalogs of sprayers and spraying. One came from the William Stahl Co., Quincy, Ill. They advised spraying while trees are in full bloom. GLEANINGS tells me to protest against such things, so I wrote to them in the following language:

Dear Sirs:—I had intended getting me a sprayer this spring, as I have quite a lot of fruit-trees; but as you advise spraying while in full bloom, and as I receive quite a little income from my bees, I will abandon the sprayer this spring, as I don't think Paris green would be good for them.

I now quote from Mr. Stahl's catalog, p. 8:

The second application should be made (and which I consider the most necessary), when the trees are in full bloom, using for this application the Bordeaux mixture, and adding thereto Paris green in the proportion of one pound to 160 gallons of Bordeaux mixture. This application should not be delayed several days; and it is well to commence as soon as blossoms begin to fall.

The above is word for word Mr. Stahl's instructions. I do not desire to injure any one's business, but why can't Mr. Stahl put it in his catalog as he did to me in his answer to my inquiry about it? The following is from Mr. Stahl's own pen:

Mr. B. A. Ammons:—We have yours of the 9th; and that you may have no misunderstanding with reference to the bloom-spraying, we beg to advise that bloom-spraying is done just as the bloom is dropping, when there is not the least danger to your bees. Of course, with those who have no bees it is just a little better to spray when the trees are in full bloom. Possibly just as good results can be obtained with this spraying done a little later. You need have no fear along this line, as thousands of fruit-growers have followed the above with the very best results, and with no danger to bees or to stock in orchard.

If you are interested in growing fruit you can not afford to pass spraying this season, as by this means only will you succeed in raising good fruit.

If the above was not worded by Mr. Stahl it was by his manager. He seems to think if I have no bees it would be better while in

bloom. If it would be better, would that be right to my fellow-man?

Mannington, W. Va. B. A. AMMONS.

[We are glad to get a statement from the Stahl concern to the effect that they do not advocate spraying except when the petals of the blossoms are falling. While the letter is not all that could be desired, it is very much better than the statement in the catalog. We are a little surprised that a progressive firm should continue, as it has been doing, to keep such advice in their circular matter, when some of the leading experiment stations, if not all of them, have condemned the practice of spraying while the trees are in bloom, finding that nothing was gained, but often much lost, on account of the injury to the delicate flower-parts from the poisonous mixtures. It is well known that there are severe losses in bees where trees are sprayed while in bloom. Mr. Ammons is not the only one who has refused to buy spraying outfits from this concern because of the advice given in their catalog. We hope the company will see that it is not only to the advantage of the bee-keeper and fruit-grower but also to its interests to withdraw such advice from the next edition of its catalog.—ED.]

**WEIGHTS OF SECTIONS DEPEND ON LOCALITY;
THE 4X5X1½ AVERAGE A FULL POUND.**

I notice on page 1072, 1905, your article in regard to light-weight sections, claiming the 4X5 sections do not weigh a pound, but which I have found to the contrary. I use nearly all 4X5 sections; and as I had noticed the fault found by some bee-keepers I made a test of it. I took off a super of 32 sections and weighed them. Here are the results: 26 weighed 16½ oz.; 3, 16 oz.; 3, 15½ oz. each. I believe it is more in the location. Here in the North the 4½X4½ section will weigh 16 to 17½ oz.; but for my use I prefer the 4X5, as I get a neater and nicer-finished section of honey. I use the Danzenbaker hive with an outer wall and chaff, and am watching results. They have proven to be very satisfactory up to date.

E. J. McLAUGHLIN.

Timberland, Wis., Dec. 4, 1905.

[You are quite right, that locality has much to do with the weight of sections. Management, as well as the particular strain of bees themselves, also has a bearing on the matter.—ED.]

**VASELINE TO PREVENT PROPOLIS FROM
STICKING TO THE HANDS.**

Tell Dr. Miller to use petrolatum or vaseline, which are one and the same thing, instead of butter, for anointing the fingers for handling brood-frames, etc. There is no rancidity about petrolatum (petrolatum jelly), and it is much cheaper and nicer than butter. It effectually prevents the hands from being all smeared up with propolis.

STEPHEN DAVENPORT.

Indian Fields, N. Y.

WINTERING BABY NUCLEI.

On page 1235 of last year you state that wintering baby nuclei in a cellar at Medina was not a success, because of the small size of the clusters. On Nov. 1, 1905, I made up and placed in the cellar, the temperature of which was 40 to 45, a nucleus of about 300 to 350 bees and a queen, on two 4½X4½ sections. They were set out for a number of flights during November, December, and early January. But on January 21, with a temperature of 75, they had one flight too many. When I came home from church, Italian bees (those of the nucleus were brown) held possession of the box, and the browns with their queen were missing. I think they might have wintered had they not been robbed out, as scarcely a bee had died up to that time. WM. C. HUNT.

Clarkson, N. Y., Feb. 19.

[There is a great difference in bees. One cluster in a baby-nucleus hive will apparently get along very comfortably, while another will succumb very shortly. The trouble with wintering with baby nuclei in the center is that the clusters are so very small they seem to get discouraged, then demoralized, breaking up the cluster, and finally dying. Mr. Allen Latham, one of our correspondents, reports good success, however, in wintering quite a number of baby nuclei. His report will appear later.—ED.]

TEMPERATURE OF BEE-CELLAR.

Would a cellar standing at 38 to 40 degrees all winter be a safe place for bees? This is the condition of my cellar.

Roodhouse, Ill., Feb. 3. W. H. PRIEST.

[A temperature of 38 degrees is a little too low to get good results for indoor wintering. When it gets as low as 38 I would carry in two or three square cans of hot water taken off the stove. By "square cans" I mean the ordinary honey-cans holding 60 lbs. Three of these placed in the cellar would increase the temperature materially. But a far better way would be to put in enough *more bees* to bring up the temperature of the cellar. If, for example, the normal temperature was 38 or 40 with 15 or 20 colonies, put in twice or three times the number until the bodily heat of the bees will raise the temperature to 42 or 43.—ED.]

WANTS BEES WITH HOT STINGERS.

I for one am like Dr. Miller. I would not have or keep bees if they could not sting. Last August some thieves tried to rob an out yard of mine. They carried off two full supers of honey about fifty yards; then the supers got so hot they set them down. They finally got a piece of fence wire, fifty or more feet long, and tried to drag them off. The frames all dropped out; and when they got to the brush they had only the supers. It was so dark and hot around there that they got only four out of sixteen full frames. They were so mad they stole sixty chickens

for the lady there. I heard all about the trip some time after. One of the thieves said it was the hottest place around there they were ever in. There was a dearth of honey then, and the bees were cross hybrids.

Marceline, Mo., Dec. 18. IRVING LONG.

[In most States there is a very heavy penalty against stealing honey from a hive. Apparently you know who the parties were. In the interest of law and order you should place the matter before the authorities. Such petty thievery, if not checked at the very start, will keep going on.—ED.]

SHIPPING COMB HONEY BY EXPRESS.

I have been puzzled and astonished because of the damaged condition of comb honey that came from New York by express. The honey runs out in all directions from the case, making trouble without end. It looks as though the case had been set on a hot stove. It has happened many times. Should not the express company know how to take care of comb honey?

RUDOLPH LICHTUER.

Milltown, N. J., Nov. 27.

[We do not recommend sending small shipments of honey by express, although we do make such shipments. The hurry of unloading from an express car often results in breaking down the combs. Better send a dozen or more cases by freight, and crate them so there will be handles at both ends. In the bottom of the crate put a loose layer of straw to cushion the load. A crate of cases weighing 100 or 200 lbs. or so will be handled more carefully than a single case that weighs only 25 lbs. Send your own man and team or go with the drayman yourself to insure careful handling of the honey when it arrives at the freight office.—ED.]

BEGINNER'S QUESTIONS.

As I am just starting in bee-keeping I should be much pleased with answers to the following questions:

1. Will an Alley queen and drone trap confine or cage a virgin queen as well as a laying queen? I have one hive of bees that I want to let swarm twice naturally, and I was wondering if, after the second swarm, I could put such a trap on the hive and prevent the queen leaving with a third swarm.

2. Do bees get any honey from wild cherry or chestnut blossoms?

3. When wintering bees out on the summer stands should I leave the hive up from the ground with no protection on the bottom so the wind can sweep right through under the hive, or should I have my winter case or windbreak come to the ground on all except the front side?

4. Will you tell me something just as good as wheat chaff to make cushions of to cover the frames in winter?

5. Is it a good plan to slant a wide board up in front of the hives in winter to prevent the wind from blowing directly in the

front of the hive, or is it more essential to have the sun on the front and entrance of hive than it is to keep the wind out?

Girard, Pa.

NORTON C. MILLER.

[1. Yes.

2. Yes, some seasons and in some localities.

3. Put the hive on a hive-stand, then put the winter-case over the hive-stand so that it comes down no lower than will just clear the entrance in front.

4. Almost any loose dry material is as good as wheat chaff. Planer shavings, dry forest leaves, and excelsior answer as excellent substitutes.

5. The plan of putting a board over the entrance to shut off the direct rays of the sun on cool days and blast of wind is excellent. When the weather is too cool for the bees to fly, it is not desirable to have the sunlight strike the entrance.—ED.]

WHAT CAN BE EXPECTED FROM THE BEES?

I am a novice in bee-keeping, and desire to ask a question. What is considered a fair or average income from an apiary of a hundred colonies if fairly well managed, and in, say, a good field, practically wild flowers, a range of low valley, and medium upland? How many colonies can one man attend?

J. C. BRETSFORD.

Berwyn, Md., Nov. 15, 1905.

[This is a large question. It would be almost impossible to give a satisfactory answer in a brief footnote, and I would, therefore, refer you to the general subject of Profits in Bees, as given in our A B C of Bee Culture. I may say in a general way, however, that a fair average per colony is about 35 lbs. of comb honey and 50 of extracted. On this basis an apiary of 100 colonies would give a gross income of from \$300 to \$400. From this amount, of course, would have to be subtracted time spent on the bees, and cost of any supplies in the way of sections and shipping-cases, or other honey-packages to put the product on the market. To that cost should be added the 10-per-cent on the total value of the bees, hives and all.

An expert bee-keeper with 100 hives, if engaged in some other occupation, might, nights and mornings, so manage the bees that the labor item could be cut out of the calculation—especially so if the work of the bees were a recreation. In that case the net income would be materially larger.—ED.]

WHO PAYS FOR THE WINTER SUPPLY OF SUGAR SYRUP?

If I took some bees to work on halves, I to get half of increase, honey, etc., for one year, and as there was no increase, no honey, nothing, and they have got to be fed or there will be no bees at the end of the year, who should buy the sugar for them if I keep them another season? or, in either case, if I do or don't?

A SUBSCRIBER.

Brighton, Col.

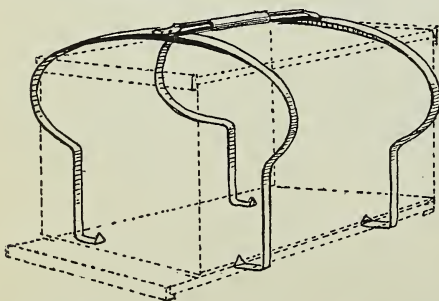
[You have given us a hard question to answer. The owner of the bees has expended no labor, and up to the time the bees have to be fed he is not out of pocket anything. On the other hand, *you* have spent your capital (labor) all for nothing. The owner put in his capital (bees and appliances) and he still has that capital. *Your* capital is gone. I should say, then, that the owner should pay for all the syrup, or his capital will be gone likewise.

In every contract involving the keeping of bees on shares there should be a provision covering a contingency of this kind. In our model contract, under the head of "Bees on Shares," in our A B C of Bee Culture, it is provided that, where no honey is secured, or an amount not to exceed 10 lbs. per colony, the owner shall pay the operator a certain amount per day to cover loss of time, but the amount is not specified. If a man is worth \$2.00 a day at the bee-yards and he conscientiously and intelligently fulfills his part of the contract, he ought not to receive less than \$1.00 a day. The owner could well afford to pay that amount, as the bees, by reason of the manipulation, have probably been enhanced in value; and for this increased value the owner should be willing to pay a reasonable sum.

If it could be shown, on the other hand, that the operator, while *claiming* to know all about bees, really knew nothing about them, and that he was negligent, then such operator should get nothing for his work—particularly so if other bee-keepers in the vicinity secured a fair crop of honey. When any one engages to keep bees on shares he ought to be able to show good references from bee-keepers with whom he has worked before.—ED.]

AN IRON HIVE-CARRIER.

I saw in GLEANINGS a picture of your pole hive-carrier. I will show you how to make one with which you can carry them up and down stairs just as well as you can a satchel. The illustration shows the idea. I use

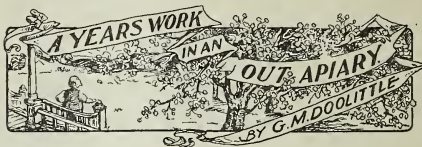


a piece of $\frac{7}{8} \times \frac{1}{4}$ steel tire for the backbone, as I call it, and a leaf of a buggy-spring for the front part. The spring has to be drawn out thin except about a foot in the center where the backbone is welded on. You can carry a hive in both hands if it is not too

heavy. To put it on a hive you take hold of the front part, spread it open, and slip it forward until the back end hooks on; then the more you lift, the more it holds on. It wants to be made so that it touches the out-sides and end about three inches. Make one and try it; and if you like it, let other bee-keepers see how much easier it is to use this than it is to carry them in the arms.

Spencerport, N. Y.

R. G. CAREY.



CHAPTER III.

BLOOM TIME.

As I looked out over the valley, and to the hills beyond, on the morning of May 20, 1905, a beautiful sight met my gaze. The dew-covered grass, in many fields, was glistening in the morning sunshine, while the plum and cherry trees, with their white flowers, in the orchards, nestled down among the more showy apple, whose pinkish-white bloom so laden the air with fragrance that, from sight and smell, one could hardly think but that he was in the sinless "Eden land" when the "stars sang for joy" on creation's early morn. But a neighing from the barn calls out "horse to be fed," and the "rounds of another day" are begun. After breakfast the horse was hitched up, as the roads to the out-apiary are too muddy, from the rain of the afternoon before, for comfort with the auto.

Arriving, I find the bees starting out in good earnest for the apple-trees, which is just what I want, as they will now be out of the way when I am hunting for the queens, for to-day's work is to consist in part in finding and clipping the wings of all unclipped queens. This clipping part would be wholly unnecessary with the plan to be given were it not that, owing to certain peculiar seasons, the bees in a few colonies will take it "into their heads" to swarm a few days before I am ready to do the "swarming;" and in such cases as these, where all queens have their wings clipped, these colonies are held together until the time has fully arrived for making swarms. As such peculiar seasons do not come oftener than about one year in four, I have sometimes thought I would give up the clipping; but so far I have adhered to it, very much as a man will stick to the insuring of his buildings when there has not been a "fire" in his school district for forty years.

On opening the hives I find the honey quite largely turned into bees and brood, as only the two outside combs have much in them—six to eight combs in each hive being

nearly solid with brood, except those which were weak in the spring. That the colonies having eight frames of brood need not contract the swarming fever before I visit the apiary again, and that all may be as nearly equal as possible when the bloom from white clover opens, I take one of the most nearly full frames from these—a frame composed of nearly or quite all sealed brood, from which I see a few bees just beginning to emerge—and put the same in one of the colonies having but six frames of brood, putting the nearest empty comb this colony has, taken to make room for this frame of emerging brood, in the colony from which the brood came. In this way all are made as nearly equal as possible. As brood-rearing has been going on now for about a month, the hives are so well filled with bees that there is no danger of any setback from a cold spell; and if we are to stop all swarming entirely except in the occasional season referred to above, no swarming being a thing most ardently desired for an out-apiary, if not an actual necessity, we must now “pave the way” for the same by commencing before the bees have any thought of the “swarming season.”

30	29	28	27	26	25	24	23	22	21
20	19	18	17	16	15	14	13	12	11
10	9	8	7	6	5	4	3	2	1

DOOLITTLE'S RECORD-BOARD FOR THE APIARY.

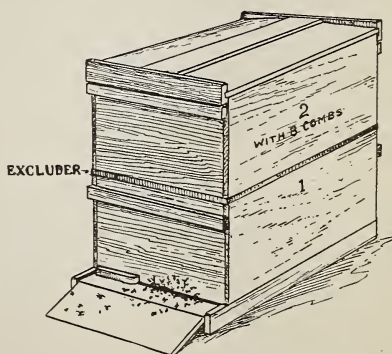
After clipping all the queens, and fixing the brood as above, and having jotted down on the 8×16× $\frac{1}{4}$ inch smooth board I have carried with me the condition of each colony, I sit down a few minutes to outline the season's work from what the board shows. This board has on it, in miniature, a sketch of the whole out-apiary—each row of hives, and each hive in its place, shown in squares on either side. Each square is numbered the same as the hives, and in these squares I make a record at each visit, giving by brief signs the condition of each colony and its needs, slipping the board under the cushion to the seat of the vehicle I use in going to and from the apiary.

In this way I have the exact condition of the apiary spread out before me at any time I may wish to know about it. I now find that 13 of the 19 colonies have 7 combs of brood each, and are good enough to receive an extra story at this time; and these, together with three others, are set apart for section honey, or 16 in all; the three weak colonies (and nine others to be made later) are to carry out the other part of the plan, to be given later on.

HOW TO MAKE COMB-HONEY COLONIES AT AN OUT-APIARY "RICH" IN STORES FOR BROOD REARING.

So far I have been working for the largest possible amount of brood which will give bees in great numbers at the time of the honey harvest, and there must be no slackening now if success is to crown my efforts. To this end, and to keep the colonies from getting the swarming fever, I use a ten-frame Langstroth hive. Small hives, the hiving of swarms on a full set of starter frames, so they will not swarm out, and later taking half of them away, so as to “send” all the white honey into the sections through the contraction of brood-chambers; the turning of the parent colony one way and another every few days, after the prime swarm has been cast, so as to throw all the bees emerging therein with the swarm, etc., may do very well for the home apiary; but any thing which requires so much manipulation, watching, and care has no place in a non-swarming out-apiary. In fact, with the plan I used to produce 114½ lbs. of section honey per colony in 1905, about the poorest of all seasons in this locality during the last 30 years (and acknowledged by the editor of GLEANINGS to be the shortest crop in the United States in many years), the ten-frame hive is to be preferred to any thing smaller.

Nearly all that has been written during the past was from the “view-point” of the home apiary, under the swarming system. W. Z. Hutchinson has well said “that few of the writers in the journals write from the point of view of the extensive bee-keeper—the man with out-apiaries. So many times I remark to myself when reading the description of a method, ‘That’s all right when a man is in the apiary all the time, but it won’t work in an out-apiary.’” Just so. I have found while working out the plan as



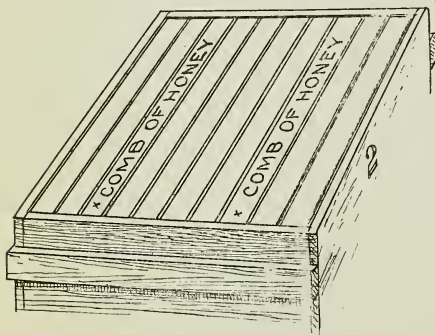
A TWO-STORY COLONY “RICH” IN STORES FOR BROOD-REARING.

here given that very nearly all of my writings during the past were of no practical importance when working an out-apiary on the non-swarming principle, with a view to the greatest possible amount of comb honey,

with the least possible labor. But, to return:

Having decided that 13 colonies are now ready for "treatment" I go to No. 1 and take out the two outside frames, containing mostly honey and pollen, putting two empty combs from the reserve pile in their place. I now put on a queen-excluder, and on top of this I set another ten-frame hive, having eight combs in it, the same being more or less filled with honey, just in accord with the way these reserve combs come off the colonies the fall previous. Perhaps I'd best tell right here how I get these reserve or extra combs. Wired frames were filled with foundation and given to colonies to draw out into combs, till I had an extra set of ten combs, or twenty nice worker combs for each colony I expected to work at the out-apiary for section honey, each year. To return again.

Having the hive with eight combs in it, set over colony No. 1, prepared as given, I take the two combs of honey taken out, and shake the bees from them so as to be sure the queen is not gotten above, when two of the eight combs in the upper hive are placed a bee-space apart, toward one side of the hive, when one of the combs of honey is put in. Four more of the eight combs are now drawn toward the frame of honey just put in, properly spacing them, when the other comb of honey is put in, the other two combs spaced, and the hive closed. The diagram show the arrangement.



I now fix the other twelve colonies in the same way, when all are ready to do the best work possible in every way till white clover clooms. Taking the years as they average, and fixing each upper hive with an average of the reserve combs, as to honey for each colony, each will have from 15 to 30 pounds, and this amount together with the way their "riches" are fixed, and the bees straightening things up to their liking, gives a zest to brood-rearing which soon very nearly or completely fills the ten combs below, and that in time to give the maximum amount of bees in the clover and basswood flow. If the bees do not secure honey to any amount from the fruit-bloom, mustard, or locust, on account of bad weather, as is often the case in this locality, they go right on with their

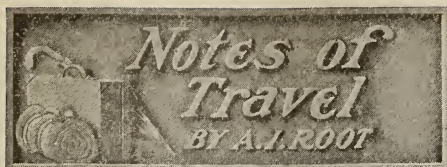
brood just the same, as the amount of honey they have demands no retrenching.

THE IMPORTANCE OF GETTING THE COLONIES IN THE SPRING IN THE BEST POSSIBLE CONDITION FOR THE HARVEST.

Again, I wish to quote from W. Z. Hutchinson: "Can you bring your bees through the spring and have them in the best possible condition for the harvest when it comes? Are you sure there is nothing you can do in this period to increase your crop? I came across a bee-keeper a short time ago who secured a crop far in advance of his neighbors; and the only difference in his management, so far as I could discover, was that he fed his bees between fruit-bloom and clover; and when the latter came the combs were full of brood and food, and the surplus went into the supers *at once*; besides, there were more bees to gather it." This is just what this plan, as here given, accomplishes. The bees are abundantly fed, so there is no slack in brood-rearing; the combs in the lower hive (ten in number) are full of brood. There are nearly double the bees to gather honey when the harvest comes that there are when working by the old plans; and about the honey going into the supers *at once*—I will let the worked-out plan tell you further on.

If a good yield happens to be obtained from fruit-bloom, wild mustard, and black locust, the brood-nest or lower hive is not crowded with honey, as would have been the case had not this upper hive of combs been given, for the combs of honey raised from below and put above tell the bees from the start, "This is our storehouse," and there is room enough in it to hold from 60 to 75 pounds of surplus, above what was in the hive when I closed it. With a good flow from fruit-bloom or any other source, just at this time, together with the honey that we had allowed them at our former visit, had they been kept in the lower hive, with no sections put on, would come a material lessening of our prospect of a surplus from clover and basswood, either from forcing them to swarm prematurely or the crowding of the queen, by filling the cells with honey, which should be occupied with brood. Elisha Gallup was right when he told us, years ago, that such would be the case where a large surplus was obtained early in the season, from robbing or any other source, which filled the combs with honey before they were fully occupied with brood.

As now fixed, brood-rearing goes on "swimmingly," with no desire for swarming, and this is just what is desirable at any out-apiary (or home yard also) worked for comb honey. The entrances to all hives but the weaker ones are "thrown wide open," while these are given as large an entrance as the stronger ones had at the last visit before this. The "dooryard" boards are fixed so that the grass will not "swamp" the hives or hinder the bees' flight before my next visit, and I am off for home. The work part, as given here, is what I did at the third visit.



NAVIGATING THE WATER ON SARASOTA BAY, ETC.

I strongly suspect some of you would rather I should write about "navigating the air;" but I am not quite ready for that just now; but it will come very soon, Providence permitting.

There seem to be four ways of propelling boats here on this bay; and, by the way, perhaps I should explain that all traffic of any account in this region is by water. There isn't a horse on this whole island (ten miles long), and there are very few on the main land—that is, unless you get back in the country away from the shore. Well, in regard to the four ways of "getting along." There are row-boats, sail-boats, and gasoline-launches. That is three; and when the wind slacks up, sail-boats (and sometimes launches) are propelled by what is called "poling." This is possible, because the water all over this bay is rarely over six feet deep, and usually only about three or four. The "poling-oar," always carried in every sail-boat, is from fifteen to eighteen feet long, and the expert sailor will put one end on the sandy bottom, then run back along the side of his boat the full length of that long pole, while he makes the boat just "scud" ahead. One day, soon after we reached here, I was standing on the shore, overcoat on, and fur cap pulled down over my ears, shivering in the terrific cold wind, when I saw a young man poling a boat, pretty well loaded down, up toward where we stood. He was barefooted and bareheaded, and had his sleeves rolled up and shirt-collar turned down, besides; but he was a splendid picture of athletic strength and manhood. As he skillfully shot his boat up to the dock, and then stood right in the wind covered with perspiration I suggested, as I took his hand, that he would surely take cold. He laughingly replied, "No danger at all, Mr. Root; I am perfectly used to it." He is the son of a well-to-do farmer, and had been to Sarasota (sixteen miles from his home) with produce, and was bringing back supplies. The wind was so heavy against him he had taken down his sails, and was "poling home" rather than sit down and loaf until the wind went down.

I want to digress a little right here. Dr. Miller's good wife might like to know why I don't take off my overcoat and "fur cap," go barefoot, get soaked with salt water (and perspiration), and then stand in the cold wind with impunity, etc. Well, I would give every thing in the world (except Mrs. Root), and start life over again, in exchange

for such vitality and strength of constitution as belong to my good friend and neighbor, Walter Blackman. After the doctors told me, a dozen years ago, that I would never again be a well man I have been fighting off "my funeral." You remember that, for years, I ran away from it with my bicycle, and, later, with the automobile. Sometimes I think I have got out of sight of my malarial chills; but back they come again; and I have learned by bitter experience that, when they come, I *must* keep up the temperature in some way. If exercise is out of the question, then I must be "bundled up." I am sure I am not alone in this. I have seen elderly people go down to their graves just because of going out or getting caught in the weather not properly protected. The modern way of barbering men folks, together with a style of hat that doesn't protect the bald heads, and *can not* come down over the ears at all, is, I am sure, a reason for the terrible amount of grip, catarrh, etc. Had Ernest worn a fur cap, as advised by *his father*, and put on a warm overcoat when outdoors, he *might* have been spared the ten-day grip mentioned on p. 345.

Now about the fur cap when bees were at work. I didn't need it then; but when I left home for a twelve-mile boat-ride *before daylight* it was very much needed; as a consequence, my other cap was at home "on its peg." Dear Mrs. Miller, don't you think I have, through God's providence, during the past twelve years or more, been a pretty "lively corpse," after all?

This poling-oar is made of the very strongest and lightest wood, and has a thin oar-like blade at its lower end. This is to save friction in drawing it through the water. Mr. Shumard says he would rather pole a boat than to run it any other way, while his two boys are both experts in the use of sails.

Gasoline as a motive power has the advantage of the others, because it is independent of the wind; but it is more expensive, and there is more or less uncertainty connected with so much complication. Before there was a windmill-factory anywhere in the United States, I made a windmill for my mother that pumped water and churned the butter; of course, the first real heavy blow we had wrecked it. I was so young then I think I cried about it; but as I wiped my eyes I to'd mother, and some of the older children who laughed at my tears, "Well, you just see if the time doesn't come when windmills will be all over the country, doing all kinds of work, and they will be made so they won't blow down *too*. Since then I have always liked *God's wind*, "that works for nothing and boards itself." It almost always blows down here, which is lucky for the boats but bad for the bees. Our sail-boats, three of them, are for fishing, and are pretty large for me to handle; but as I had a great longing to try my hand at it, Mr. S. and his son-in-law told me one rather quiet day to go ahead. As they were at work in a field some distance from the house,

they said Florence would show me how, and get me started. Now, as Florence is nearly eighteen I am a little shy of her, and naturally she would be a little shy of climbing around with me on a boat; but my two good friends, Clara and Flossy, were on hand, and they said they could tell me "all about it." It took us all three to set up the mast and spread the sheet to the wind; and just as I was about to "launch out" I asked Flossy (eleven years old) if *she* couldn't go along. Clara ran to get permission, while I inquired if Flossy had ever run a sail-boat. She said she had, while one of her brothers was along, but never all alone; but she felt sure she knew all about it.

"All right!" sang out Clara, and we were off. I held the ropes attached to the rudder; and when I found it was just as easy to guide as driving a gentle horse, I said, "Why, Flossy, one could almost read a newspaper while running a sail boat. It's just the easiest and nicest thing in the world."

If I remember, Flossy didn't exactly agree to this, especially as we were nearly across the bay, and approaching the dock near the store. I suggested that we come up to the dock with the wind behind us; but Flossy said not so—that we must swing around so as to run up *against* the wind; and she managed so well I actually said, "Hello! we are going to make an 'eggshell' landing, I verily believe;" but when the boat got up so I might have reached the timbers of the pier, if I had been on the alert, the boat struck a plank under water and veered off. We swung round and tried to run up again; but the boat got contrary, and, like an old horse that found children had got hold of the lines, wouldn't go anywhere. The wind was blowing us further and further from the dock in spite of us; and as Flossy was "captain" I supposed she had some plan in mind, and, wanting directions so I could fall in with her plan, I said:

"Well, Flossy, what are you going to do?"

"Why, Mr. Root, I don't know what I *can* do."

"Well, see here. We are going right toward the postoffice dock; let's go down and get off there."

"All right, we *can* do that, can't we? We'll have to walk back to the store to do our trading, but that won't matter much." We had both just begun to feel happy again when we got too near the shore, and were aground. I said:

"Never mind, Flossy, I can fix that;" and I took the poling-oar and pushed off with such zeal that I swung the boat clear round, and the contrary thing started briskly for the store-dock, right where we had been trying to go and couldn't. Then we both laughed, and I told her our boat was like the dog. His master opened the door and ordered him to go out; but instead of obeying he ran under the bed.

"All right," said the man, "go under the bed then. Any way so you *mind* what you are told."

By this time we were up at the store-dock, and the storekeeper said:

"What are you two trying to do?"

I replied, "We were just trying to *stop* somewhere, but our boat got contrary."

After we got our purchases aboard, with some anxiety and trepidation we hoisted sail and started for home. Said I: "Flossy, can't we get home without tacking?"

"I don't exactly know," she said slowly; "but I am going to try hard."

It seems odd to those unacquainted with sail-boats that the same wind that sends the boat flying eastward will also send it westward; and, more strange still, that a wind right *across* the path of the boat will send it with still greater speed than if the wind is exactly *behind* the boat. In our case the wind was a little west of south, and we tried so hard to run straight to our dock that the sails often flapped in the wind, and we didn't get ahead at all. Flossy finally declared, when about half way across the bay, we would *have* to tack, and we undertook to do it, just as we had seen the boys do; but the boat got fidgetty and contrary, just as it had before; and after trying several times, and finding the boat "*just wouldn't*" turn round, we gave it up.* The wind also began to get more lively; and when it looked as if we two might (in spite of all *we* could do) go off as Columbus did across the great ocean, Flossy announced we would have to run in below our dock and "pole up." I was going to do the poling, but she said I would never get anywhere without practice; that if I could get the sails down and tied up she would get us up to the dock O. K.

"Oh, yes! I can take down the sails, *sure*; what is to hinder?"

By this time we were so near the shore Flossy shouted, "Pull up the center-board!" As I had just commenced on the sails, this "sort o' rattled" me; but I got it up, then I grabbed for the sails; but they flopped in the salt water, then rapped me across the face, and acted like all possessed. The boat tipped about so I lost my footing, and didn't know but I should go overboard, while the eleven-year-old child puffed and blowed with the exercise of handling that great long heavy poling-oar.

The first thing in getting down the sail is to loosen the "sprit" (pronounced "*spreet*") the diagonal stick that keeps the sail spread out; and as this is almost as long and heavy as the poling-oar, when there is much wind it is quite a job. When it is out, the sail manifests a *wonderful* unwillingness to be tied up to the mast. We both drew a long breath of relief when we got our boat tied, and found the folks on shore, who had been watching and laughing at our maneuvers. And I, too, laughed until I almost cried when I thought of how serious Flossy looked when she said, "I don't know whatever I *shall*

*The boys explained the reason why we failed to swing round was because we were running so close to the wind we had very little speed and not enough momentum to the boat. Had we turned the boat so as to *speed* before tacking we should have done better.

do." I spoke of making an "eggshell" landing. An expert boatman is expected to run up to the dock so quietly that his boat would not break the shell of an egg as it struck. Bumping injures the dock and injures the boat. A nice boat should never "bump" anything. When the wind rises, our boys untie their boats and anchor them so far away from the dock the wind can not possibly pound them against it. Besides this, about once in 90 days a boat should be turned over on dry ground, dried out, calked, and then painted.

I have mentioned that the three girls go a mile and a half to school in a little row-boat. A few days ago their fifteen-year-old cousin, Ernest Shumard (by the way, he was named after Ernest Root about fifteen years ago), told his mother he was not well enough to go to school, and got permission to stay at home. While at home, however, he rigged up a little mast for this row-boat, got his mother to help make a sail, and the girls come home without touching an oar. Of course, they can not tack very well without a center-board; but much of the time their little sail saves them a deal of hard work.

SAILING ON DRY LAND.

A few days ago our mail-boat left a pretty heavy box of oranges, lemons, and grape fruit at our landing, sent by our neighbor Drumright. I knew I should have quite a task wheeling them almost a mile along the beach, because the sand in some places is rather soft. This is what I did after I had considered that a hard wind was blowing our way. I fastened a four-foot-stick on the back board of a wheelbarrow just over the wheel. Then I drove two stakes into the staples that hold the side-boards. These stakes reached about as high as my head, and across and top of them I fastened a rather four-foot stick. A piece of burlap or bagging about four feet square made the sail. One edge was tacked to each four-foot stick, and a stout cord ran from the top end of the handles of the barrow to the ends of the stick near my head. I loaded on my oranges, let the wind fill my sail, and it was easy work carrying the load. When a big gust of wind came I had to run to keep up. Another thing, my sail was disposed so it was something like a kite; and while it pulled, it also lifted up on the load so much that in soft sand, when there was a good puff of wind, the wheel sank in the sand very little. When a horse pulls a vehicle through the mud he lifts up on it as well as pulls it ahead. The power applied to an automobile does not *pull up* at all, and this is why it takes a four or five horse-power engine to propel a load that two horses would *pull* easily. My device pulls like the horse, or better still. We need no guiding mechanism with a wheelbarrow, for it is guided already. Whenever heavy loads are to be moved with a wheelbarrow any distance of any account the wind can easily be made to help. When going the other way your sticks and cloth tied up take but little room, and *their weight* is trifling.

Just a word more about sail-boats. With a fair wind your boat handles better and *sails faster* with a good load than when empty. In fact, the boys carry all the time on their fishing-boats a bag of sand for ballast, weighing over 100 lbs. When the wind blows across the path of the boat so as to tip it over badly this sand-bag is placed clear upon or across the gunwale, so as to straighten the boat up, as it were. Larger boats carry tons of scrap iron as ballast. Sometimes heavy freight can be transported at a very low rate by letting it take the place of ballast.



No good thing will he withhold from them that walk uprightly.—PSALM 84 : 11.

GOD'S GIFTS; THE WATER WE DRINK.

I believe the general decision is that, as a rule, pure soft water is safest to drink, and distilled water is probably the purest water that we can readily procure. Rain water taken right as it falls from the clouds (God's precious gift) is, however, so nearly identical with distilled water that wherever rainfalls are frequent it is, perhaps, the water for the average individual. T. B. Terry secures his drinking-water from a slate roof after there has been sufficient rain to wash the dust, smoke, etc., from the slates; and, if I am correct, he preserves it in covered stoneware jars. Perhaps there is no better way than this; but I have been using an automatic device we like very much for accomplishing nearly the same result. I have told you of our painted wooden eave-trough. Well, before I got around to making a wooden conductor to bring the water straight down at the end of the spouting into the rain-barrel. I noticed that, during a hard rain, the water would spout away beyond the barrel, and that it was only when a great quantity of water was coming down that the stream shot over the rain-barrel. A pail was placed beyond the barrel, and, as I expected, the water in this pail was of the very best. This is an important matter here, as our shingles are cedar; and unless it is raining very hard these shingles give us a little more cedar flavor than is desired. Well, when it first begins to rain, the water for a time drops straight down from the end of the trough. We set a big pail or tub for this strong dusty water, and use it for washing the hands. The large barrel gets the main part of the water from the shower; but the pail or tub that catches all that shoots *over* the barrel is always the best for drinking.

An ideal way would be to have a box or trough divided into three compartments; and if you wish to avoid "cultivating" mosquitoes, have a hinged cover over all, to be

opened only when it rains or when you wish to dip out water. If you need to save every bit of the rain water, you will find a good deal will be lost that falls between the tub and barrel. To prevent this, nail two shingles together V shape. Invert your V, and hang it over the edge of the barrel so all the water goes either into one or the other receptacle. In this region, as well as around New Orleans, cisterns are made of wood, as a rule, and placed on top of the ground. Kerosene-barrels are much used; and to get rid of the oil, rosin, etc., that would make the water taste, you make a big fire in the empty barrel, with shavings or something that will make it "hot." Use enough fuel to *char* thoroughly the whole interior. To get rid of all rosin, glue, etc., you must have it blazing so hard that the flames can be smothered only by turning the open end down on the ground when charred sufficiently. A "charcoal-lined" barrel is about as good a receptacle as you can well get for your rain water. Of course, all I have mentioned can be applied as well to cisterns made of cement, in the ground; but I have found very little cistern water in quality equal to that from a "charcoal-lined" barrel. If rain water is too warm and insipid, use ice. I don't care for the ice, but I do care a great deal for a little lemon juice squeezed into the water I drink; and after a *continued* use of it I still think it one of God's medicines. Don't put any sugar in it — at least not for regular daily use. Lemons grow almost of themselves in warm climates, and it impresses me that they are one of God's precious gifts.

Some may think what I have mentioned is a deal of "fuss" about so simple a matter as a drink of water; but, my friend, any thing that lessens the need of calling a doctor is far from being a simple matter. If you have a good spring or well, and the water agrees with you, I do not know that I would take the trouble to drink soft water; but physicians tell us a good many stubborn diseases are often helped by a change of drinking-water. I have sometimes thought the water from our spring in Michigan was better for my digestion than good rain water; but it may be only a notion. I feel quite sure, however, the mineral spring water of Agua Caliente, Arizona, commenced *at once* to have a very beneficial effect on my disordered digestion consequent on traveling. I think we may thank God for these special springs with their "healing waters," in about the same way we thank him for the lemons.

A. I. ROOT'S BATH-ROOM.

During the past winter I have had an experience that prompts me to add something to what I have written in regard to the beneficial effects of a shower bath. It came about in this way. You remember what I said in December about the "donax" shell-fish. Well, we have been having them once or twice a week all winter, and we have never tired of them the least bit. When the waves were high it was something of a

task to gather them; and again and again I would go home soaked with salt water clear above my knees. At first I explained to "Sue" I was so busy getting the donax I forgot about the big wave, but added, "I've had experience now, and I won't get caught that way again." Well, it was only the old story over again until, in desperation, I sent to Montgomery Ward & Co. for a 60-cent bathing-suit by mail, and then I didn't need to mind the spray. In fact, I rather enjoyed it. When I finished my fishing I was ready for a real play in the salt water. Yes, a shower bath is a luxury; but, my friend, a shower bath in the old ocean with the salty spray about your ears and eyes is certainly one of God's most precious gifts.

A word more about the donax. When they are plentiful we get enough for several days in just a few minutes. I think I should enjoy a teacupful of donax soup at every meal; and with a few crackers or some dry bread it is the easiest dish in the world to prepare.

Mrs. Root had been scolding me one day (before I got my "suit") because I could not remember to get out of the way of the waves. As she wanted some donax for supper she came down to help. Oh, no! *she* wouldn't get caught; but when she got "busy" a big surf came up like a thief in the night; and it wasn't only her *slippers* that were drenched with salt water either.

THE SEA-BREEZE AND LONG DEEP INHALATIONS.

I have talked about water to drink and water for a shower bath, and now I have something to add about good air to breathe. For about two months we got our mail from the office with a boat; but it was often inconvenient to get it daily. The mail comes from Sarasota in a gasoline-launch, and the channel brings it close to our island, about a mile distant from our home. The carrier said if I would put up a box he would give us "R. F. D." Now, it has not been really necessary for me to walk this mile and back every day; but I soon began to enjoy my 9-o'clock morning walk so much I have hardly made a miss in two months. My path is along the Gulf—at least that is the easiest path, and the wet sand is usually so hard it scarcely leaves a footprint. There is almost always a strong sea-breeze to be faced, going or coming; and on these trips when facing the wind I have pulled in deeper drafts of air than I ever did in climbing the Michigan hills*. I am sure I am an inch or two larger around my lungs than I ever have been before; and while I drink in these delicious "pulls" of the cooling breeze from across the great waters I thank God again and again for this gift and the privilege of enjoying it in my old age. *Surely* no good thing will he withhold from them that walk uprightly.

*I want to say to my good friends in Dr. Miller's home (and others) that my fur cap is dispensed with during these walks. I usually go in my shirtsleeves, and sometimes bareheaded a great part of the way. I also leave my fur cap on the shore when swimming in the turf.

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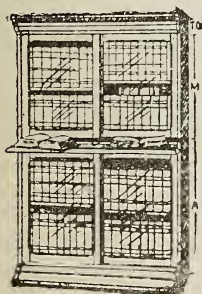
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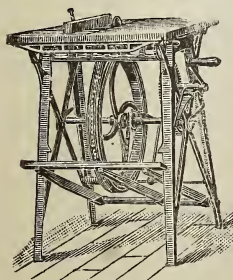


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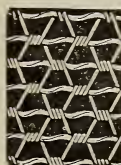
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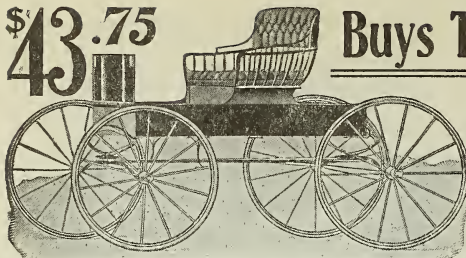
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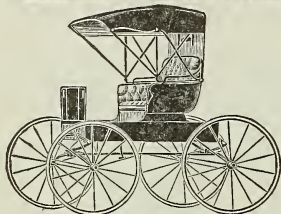
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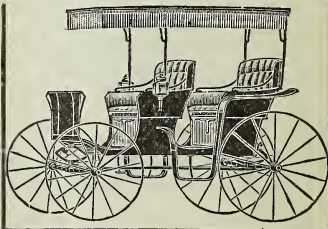
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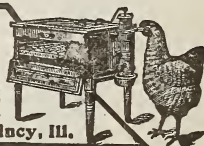


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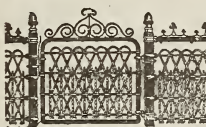
GEO. H. STAHL, Quincy, Ill.



\$1. PER MONTH

to \$2. per month rents any incubator. Rent pays for it. We Pay the Freight. 40 Days Trial at same prices. Buy plans and parts and build one. Prices, ready to use: 50 egg \$5.00; 100 egg \$9; 200 egg \$12.75. Brooders, \$3.50 up. Guaranteed. Catalog free.

BUCKEYE INCUBATOR CO., Box 64, Springfield, O.



LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address **COILED SPRING FENCE CO.,** Box 448 Winchester, Ind.

Will You Test This Corn Grader —A Month at My Expense?

This is the Grader that attracted so much notice at the State Fairs last Fall.

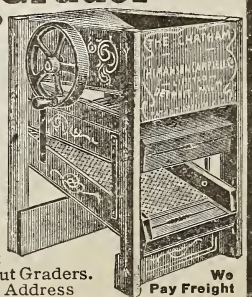
It grades seed corn 98% perfect, so that your edge drop or round hole corn planter gets kernels it can drop evenly—three to a hill. This increases the yield 20 to 30 bushels per acre.

We want you to know this by actual test. So we make you this remarkable offer—

Upon receipt of your order, we will send you a Chatham Corn Grader, freight prepaid. Use it

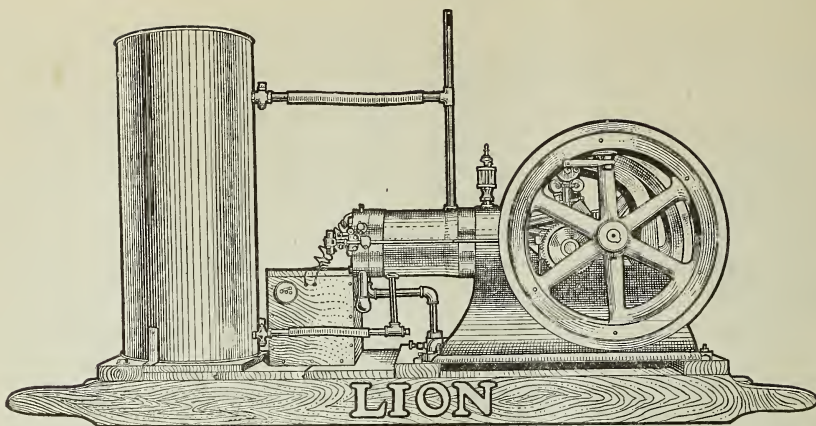
30 days. Find out what it will do. If it is not as represented, send it back at our expense.

The month's use you have had of it will be FREE. If it is as represented, the price is only ten dollars. And the Grader will save its cost in a single season. We ship direct to you from the nearest of our twenty branch Warehouses in leading cities. Thus you get your Grader promptly. Let us send you our new book about Graders. It's FREE. Ask for it today. Address



**We
Pay Freight**

The Manson Campbell Co., 420 Wesson Ave., Detroit, Mich.



IT'S READY TO OPERATE

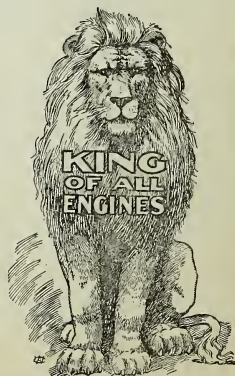
There's no firing-up—no waiting for steam with a **Lion** Gasoline Engine. It is **always ready to operate**. Easily started—no engineer necessary—a boy can operate it. Can be used with perfect safety in any building and is very **economical** in the use of fuel. If you want a reliable, practical, durable and powerful power producer get

The Lion Engine

It is **not** an experiment but an engine that has **made good** wherever used. On the farm it proves especially valuable for operating feed grinders, wood saws, cream separators, corn shellers, pump, etc. It furnishes ideal power for operating machinery used in mills, shops, printing offices, private electric-light plants and water-works. Speed can be changed from 100 to 600 revolutions per minute while engine is running—a very desirable feature.

We sell direct from factory to buyer, thus saving you all middlemen's profit. Lion engines are so simple and practical in construction that with the explicit directions which we send with each engine, it is unnecessary to have an expert come to your place to set it up and start it for you. Get a **Lion** engine and increase your profits with much less labor and time devoted to the work. Write now for catalog giving full information and illustrations of the **Lion** engine. It is free if you mention this paper when you write.

Lyons Engine Company
LYONS, MICHIGAN



The time is fast approaching when any one who has building to do will own a machine and make hollow concrete building blocks for any structure he is to erect.

With our machines you can make the blocks just as good as any one else by following the instructions we send with each machine.

Medina Concrete Co.,
22 Court Street
MEDINA, OHIO.



PIONEER GUARANTEED NURSERY STOCK AT WHOLESALE PRICES

All stock guaranteed disease free and true to name.
Hart Pioneer Stock is pure bred and produces heavy crops.
Value received for every dollar sent us. No Agent's Commission
WRITE FOR COMPLETE PRICE LIST. WE WILL SAVE YOU MONEY
HART PIONEER NURSERIES, Est. 1867 Fort Scott, Kan.

THE KITCHEN GARDEN
JEWELL'S COMPLETE HORTICULTURAL ESTABLISHMENT. Our 5 FREE CATALOGS cover everything that is HARDY in the line of FRUIT TREES AND PLANTS and GARDEN SEED. The new Jewell Fruit Catalog is the most complete published.—honest descriptions based on 38 years experience in Minnesota. 1906 Free Catalog of Tested Vegetable Seeds now ready. Remember we have a 1200 acre nursery here devoted to fruit and ornamental stock suited to the North. Every tree guaranteed for 2 years.
RELIABLE AGENTS WANTED
THE JEWELL NURSERIES
Box 12 Lake City, Minn.

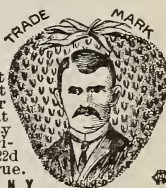


850,000 GRAPE VINES

69 Varieties. Also Small Fruits, Trees, &c. Best rooted stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive price-list free. **LEWIS ROESCH, FREDONIA, N.Y.**

STRAWBERRY PLANTS

The Senator Dunlap is the best grower, best producer, best shipper, best seller. I offer over 1,000,000 of these plants at surprisingly low prices; fifty other varieties. Large variety fruit plants, roses, etc. 22d year. Send for free catalogue.
L. J. FARMER, BOX 608 PULASKI, N. Y.



HOW TO GROW CACTI

is fully explained in the new book just issued, "Cactus Culture for Amateurs," 80 pages, finely illustrated, describes 500 varieties. Tells where found, treatment to produce bloom, soil, how to



graft, how to grow from seed, and where to get all rare Cacti and Succulents, price 25c. 40-page catalogue of Cacti, and nice sample Cactus (named) 10c. E. Texensis (like cut) 25c. Old Man (genuine) 50c. 10 nice Cacti, all different, \$1.00. Circulars free. **The Callander Cactus Co., Dept. 48, Springfield, Ohio.**

Special Notices

By Our Business Manager

BEESWAX WANTED.

We are in the market for all the beeswax we can get, and will pay, till further notice, 29 cents cash, 31 in trade, delivered here. We hope the price will not have to go any higher, for if it does we shall have to increase the price of comb foundation as well, and we want to avoid changing the price of that during the season if we can.

TOBACCO DUST.

We have furnished many tons of tobacco dust to those who grow lettuce, cucumbers, melons, etc. It is used as an insecticide and fertilizer. We are prepared to supply it in quantities large or small—10-lb. lots, 25 cts.; 100-lb. lots, 2 cts. per lb.; 150 lbs. for \$2.75. Cases of 300 to 400 lbs. each, at 1½ cts. per lb. Can ship from here or from Marquette, Mich.

ORDERS FILLED PROMPTLY.

The volume of business has been quite gratifying considering the fact that so many supplies were left unused last season, owing to the partial failure of a honey crop. Orders are well filled, and we are in position to take care of new orders promptly. The demand for honey-extractors from Southern California has been greater than it has been before in years, and there is every indication of a good crop of honey in that section. We furnished about 200 extractors in the month of March alone.

MAPLE SYRUP.

The weather this spring has been favorable for the production of maple syrup, and the quality of the syrup produced is finer than we have had for several years. We have about 400 gallons in stock put up in one-gallon cans, which we offer in cases of six cans at \$1.00 per gallon; less than full-case lots \$1.10 per gallon.

We also have a limited amount of No. 1 maple sugar which we offer at 12 cents per pound as long as it lasts. Now is the best time to ship maple syrup and sugar before the hot weather comes on.

ALEXANDER FEEDER.

We are prepared to furnish the Alexander feeder spoken of in an article in this issue. We make them 19 inches long, so they may be used with either an eight or ten frame hive. With a ten-frame hive they will project three inches beyond the hive for feeding, and the block may be laid crosswise of the feeder or be cut off as preferred. With the eight-frame hive the feeder projects five inches, and the block lies lengthwise. We soak the feeders in oil to preserve them, and fill the pores to prevent the feed from soaking in. Price finished, including block, 25 cents each. Ten for \$2.00; 50 for \$9.00.

GERMAN BEE-BRUSH.

Some months ago Mr. R. F. Holtermann called our attention to a bee-brush which he received from Germany, made of genuine bristle or horsehair. He had used one a whole season, washing it out often, and it appeared to be as good at the end of the season as at the beginning.



He considered it so far ahead of anything he had ever seen or used that he wanted no other. We concluded if it was so good for him it must be equally good for others. We are now provided with a stock which we offer at 25 cents each; by mail, 30 cents. The bristles are

black, and about two inches long, extending eight inches on the handle. Made of white bristles it would cost 5 cents each more.

HOTBED SASH.

Cypress lumber has been advancing in price as well as other kinds, and the 1½-inch shop grade used in making hotbed sash can not be had at all of any of the mills, so far as we can find. We are fortunate in finding some on the hands of a dealer, and have kept our orders up. We have had a car ordered since last December, which has not been shipped yet, and we can not tell how soon it will be. We have another car ordered from another dealer, so we may hope to be in shape to care for our orders as well as any one can. We have one car on hand which will make several hundred sash. Prices will be 5 cents each higher—i. e., 85 cts. each, \$4.00 for 5; \$7.50 for 10.

Special Notices by A. I. Root.

BASSWOOD-TREES AND OTHERS.

This spring we are sold out on our basswood-trees one foot and under—the kind we have sent mostly by mail. That is, we are sold out of all grown in our own nursery. We have, however, a good supply just collected from the forest. They have been healed in, and the buds are probably starting nicely. While they are not as nice as those that have been one year in the rich ground of our nursery, I think they will all make nice trees with a little care. To those who care to take them with this understanding we will make these very low rates: 10 trees, 20 cts.; 100, \$1.50. If wanted by mail, add 5 cts. postage on 10 or 25 cts. per 100. Larger trees, to go by express, grown in our own nursery, 10 trees, 75 cts.; 100, \$5.00. The basswood is a very hardy tree, and rarely fails to grow.

BACK ONCE MORE AT THE MEDINA HOME.

Mrs. Root and I reached here on the afternoon of April 14, and I expect to get at the big pile of letters awaiting my arrival as soon as possible.

On page 526 of the present issue the last word reads *surf* when it ought to be *surf*.

This reminds me that I neglected to tell you how much I enjoyed swimming in the great ocean when the waves were high enough so I could rise and fall with the swell, like a bird on the wing. I do not know but it is as near flying as I shall ever get. For quite a time it took all the courage I could scrape up to let a huge wave roll over me, and to be sure that I would come up on top safe and sound. When you once get to feeling that there is safety and security on the bosom of old mother Ocean there is an exhilaration and buoyancy that is equaled only by the delightfully refreshing feeling for an hour or two after a salt-water bath.

On page 413 of last issue, Ernest almost suggests that A. I. R. succeeded in raising only four laying queens during his sojourn of four months on the island; but he neglected to tell you that the twin hives ordered in December, and shipped Jan. 2, were not at hand when I left the island, notwithstanding tracer after tracer was sent after them. I am inclined to think our good friend Dr. Miller is about right where he says, on page 438 of this issue, "The average queen reared here before the middle of May is worthless, although she may be nice-looking and seem to lay well for a time." With favorable weather we may be able to raise first-class queens during every month of the year.

Convention Notices.

The semiannual meeting of the Western Illinois Beekeepers' Association will be held in the county courtroom, in Galesburg, on Wednesday, May 16, beginning at 9 A.M., and lasting all day. C. P. Dadant and J. Q. Smith have promised to be present and contribute to the success of the meeting. Our meetings have been good, but we hope to make this one better. Galesburg has good train service, and all bee-keepers in this part of the State should avail themselves of the opportunity. Come, and bring your wives. E. D. Woods, Sec. Galesburg, Ill.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

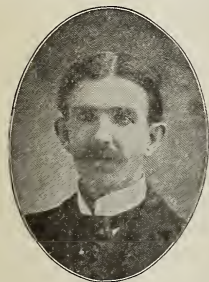
BEE-KEEPERS' SUPPLIES

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.



New Metal-spaced Hoffman Frames are Here in Stock

Conversation with Wilson

"Good evening, Mr. Wilson. Come in and have a chair. I haven't seen you since you sent to Pouder for those supplies. Have they arrived yet?"

"Yes, they came long ago, and we have them all put together and painted. Bob put most of them together. You see Bob has been making fun of 'Mandy and me for having the bee-fever; but since Pouder sent those supplies he has the fever as bad as any of us. I heard him ask his ma when she was going to have a quilting-bee, and he wants me to have a husking-bee. Those supplies surely are fine, and how nice every thing did fit! Well, Mr. Smith, I hear you have been over to Indianapolis, and I came over to ask if you saw Pouder, and if you had a talk with him about spring feeding."

"Yes, I had quite a visit with Pouder. He is certainly well equipped to handle a lot of business. We had a long talk about spring

feeding and several other subjects. I was a little surprised when he told me that he is opposed to spring feeding unless colonies have been neglected in the fall. If they have been neglected they must, of course, be fed; but they should have candy, no feeder being satisfactory in cool or cold weather. Pouder thinks that all feeding should be done in the fall and there is no danger of overfeeding. He says that, while others are worried about their bees starving in February or March, he rests easy, knowing that his have an abundance; says he thinks spring feeding often starts spring dwindling, and it sounds pretty reasonable to me."

"How about feeding in the spring just to encourage brood-rearing?"

"Well, we were talking about that too. He says that, when they have an abundance of stores, and are left alone, such colonies build up faster for him than those trifled with."

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight; always be sure to attach name to package.

CATALOG FREE

WALTER S. POUDER,

513--515 Massachusetts Ave.,

INDIANAPOLIS, IND.

Bee = keepers!

Are you aware that we are manufacturers, and can supply you with every thing you need in the apiary?

Good Goods, Low Prices and Prompt Shipments

are the POINTS in our favor. Our customers say so. Convince yourself by sending us your order. Ask for our free Illustrated Catalog and Price List.

Page & Lyon Mfg. Co., New London, Wis.

Montana, Minnesota, Dakota, and Western Wisconsin Bee-keepers!

You can save freight by ordering of the St. Paul Branch. We have a complete stock of bee-keepers' supplies. Write at once for catalog and obtain our early-order discounts.

BEES AND QUEENS—Orders booked now for spring delivery.

HONEY AND WAX—We handle honey and wax. Write for particulars.

The A. I. Root Co.

Northwestern Branch,
1024 Mississippi Street,

J. C. Acklin, Mgr., **St. Paul, Minn.**

Do you want Results?

The Best Results will
be Obtained by Using

Dittmer's Foundation

Now is the time to get your bee-supplies and make them up for the coming season. We make a specialty of working beeswax for cash.

Beeswax always wanted. A postal card will bring you our catalog, which also contains valuable information for beginners.

Retail - Wholesale - Jobbing

Our warehouse is well stocked with bee-supplies of all kinds.

Gus Dittmer, Augusta, Wis.



H. M. ARND, MANAGER

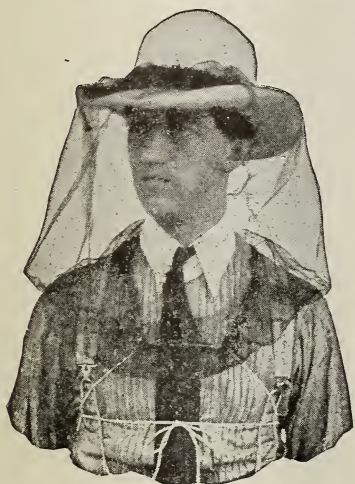
YORK HONEY AND BEE CO. Not Inc.

141 ONTARIO STREET : CHICAGO, ILLINOIS

CARRY A FULL LINE OF

Lewis Bee-supplies and Cornell Incubators and Brooders

and poultry-supplies at factory prices. Write for the 1906 catalog of either or both. Honey for sale. Beeswax wanted; 28 cts. cash, or 30 cts. when taking bee-supplies in exchange. Italian bees, in modern hives, for sale, f. o. b. Chicago.



Michigan Distributors

—FOR—

G. B. Lewis Co.'s Beeware, Dadant's Foundation.

With an enormous stock, and the best shipping-point in Michigan, we are in a position to give you the very best service. Regular discounts allowed.

SPECIAL. A quantity of Dovetail and Wisconsin hives, slightly discolored by water, in packages of five at \$1.25 per hive for 1½-story 8 frame; 10-frame, \$1.40 per hive. Satisfaction guaranteed.

ADVANCED BEE-VEIL. Cord arrangement, absolutely bee-proof, best on earth. Made of imported French tulle veiling. Cotton, with silk face. **50 CENTS, POSTPAID.**

A. G. Woodman Co.,

Beeswax Wanted.

Grand Rapids, Mich.

Southern Bee-keepers !

If you want bee-keepers' supplies of best quality and for the least money possible, you should buy them from the WHITE MANUFACTURING COMPANY. Situated, as we are, right near the great pine belt of North Texas, Louisiana, Arkansas, and Indian Territory, we can secure the best material possible at least cost, thus enabling us to give entire satisfaction. Catalog and price list free.

White Manufacturing Co. - Blossom, Lamar Co., Texas

Bee-keepers' Supplies!

Lewis' famous "Beeware," Root's Smokers and Extractors; Dadant's Comb Foundation, etc.; Queens and Nuclei in Season, Large and Complete Stock; Prompt Service. We will meet all competitors who handle first-class goods. Catalog with practical hints free.

"Mandy Lee" Incubators and Brooders !

Whether you are experienced in artificial incubation or not, these incubators will give you gratifying results. The "Mandy Lee" brooder is the only brooder made which applies direct contact heat to the little chicks' backs. Our free incubator catalog describes them. Prompt shipments.

C. M. Scott & Co., Indianapolis, Indiana
1004 East Washington Street

BEE-SUPPLIES

We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

Kretchmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa.
Trestler Supply Co., Lincoln, Nebr.

Shugart-Ouran Seed Co., Council Bluffs, Iowa.
T. B. Vallette & Son, Salina, Kansas.

BINGHAM

Original
Direct Draft
CLEAN
Bee Smokers



Pat'd 1876, '82, '92 & 1903

Pretty Recognition

A lady to whom I sent a Smoke Engine to order per mail sent this delicate recognition, "I am pleased," and signed her name.

We have made hundreds of thousands of smokers in the last twenty-eight years. They always please and *last*; don't *spit fire*; don't go out; don't *daub* themselves all over. We are the most extensive *exclusively* bee-smoker makers in the world.

T. F. Bingham - Farwell, Mich.

Chico, California, October 28th, 1905.

Dear Mr. Bingham:—Enclosed find money-order for a honey-knife and smoker. I can't do business without a Bingham Smoke Engine.
J. M. RANKIN.

A Prosperous

Season is yours....

if you take time by the forelock, and be prepared for the season when it comes. **DON'T** put off ordering your supplies until you need them. Order now, and get the discounts.

I have a full line of Root's Goods, and sell them at factory prices and discounts. Send me a bill of what you want and let me tell you what I will deliver them at your depot for. Send for my 36-page catalog—it will be sent free—also a full description of the Hilton Chaff Hive and Supers, with a comparison made by the Michigan State Agricultural College between the single and double walled hives. All free for the asking. Cash or goods in exchange for wax.

Geo. E. Hilton, Fremont, Mich.

WISCONSIN - BASSWOOD

FOR SECTIONS

We make them and the very best of **Dove-tailed Hives, Shipping-cases**, and a full line of Bee-keepers' Supplies always on hand. We make very prompt shipments. Let us hear from you.

Marshfield Manufacturing Company

Marshfield, Wisconsin

NORTHEASTERN & NEW ENGLAND

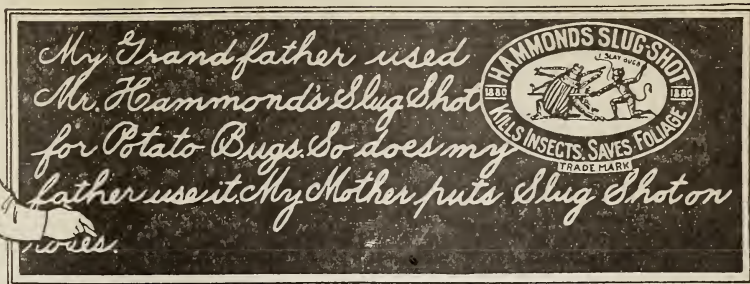
BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

Sold by Dealers in Seeds all over America.



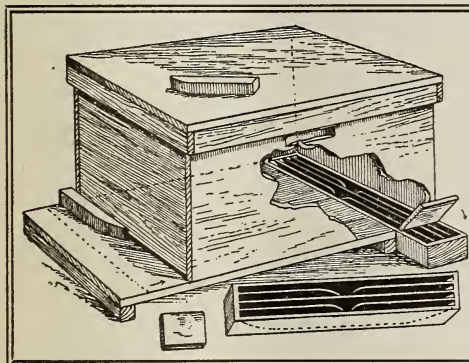
"SLUG SHOT"

Used from Ocean to Ocean

A light, composite, fine powder, easily distributed either by duster, bellows, or in water by spraying. Thoroughly reliable in killing Currant Worms, Potato Bugs, Cabbage Worms, Lice, Slugs, Sow Bugs, etc., and it is also strongly impregnated with fungicides. Put up in Popular Packages at Popular Prices. **Sold by Seed Dealers and Merchants.**

HAMMOND'S SLUG SHOT WORKS, FISHKILL-ON-HUDSON, N. Y.

Write for pamphlets worth having on Bugs and Blight, and for bee-hive patent.



Alexander's Bee-feeders

are now manufactured by The A. I. Root Co., Medina, Ohio, and by Charles Quackenbush, Barnevillle, Schoharie Co., N. Y. These are the most practical bee-feeders that have ever been used in feeding bees, and why? Simply because you can feed a colony in less than 20 seconds, either in the winter or summer; and although the colony may be very weak and the weather cold the bees will empty the feeder at once. There is no danger of robbing, neither will there be any heat lost from the colony, nor a bee killed nor a drop of syrup wasted. The above advantages can not be said of any other bee-feeder. Try them this spring and build up the working force of your colonies so you can have twice the surplus honey in the fall that you would have if you lost the best of your clover harvest in rearing bees that mature only when the harvest is over. See article on Spring Feeding in this number. E. W. ALEXANDER, Inventor, DELANSON, NEW YORK

Now Ready

To book your orders for bees for May and June shipment.

Our New Stock of Goods

has arrived, and we can fill orders for eight and ten frame Dovetailed or Danz. hives and supers, also the new **METAL-SPACED HOFFMAN FRAME** on short notice.

Send for price list of Bees, Queens, and Hives.

W. W. Cary & Son,
Lyonsville, Mass.

I. J. STRINGHAM

OF 105 PARK PLACE

New York

furnishes every thing a bee-keeper uses. Strong colony of bees, with tested Italian queen, in Dev'd hive complete, \$8.75; in a chaff hive, \$9.50. Three-frame nucleus, with Italian queen, \$4.25. Silk-faced bee-veil, 40 cts. postpaid. Italian queens, \$1.00. Catalog of bee-supplies free.

Apiaries, Glen Cove, Long Island.

The Quality of Bee Supplies

OUR Bee-supplies are made from the best material, by the most skilled labor. We give an article of superior merit at a great reduction in price. We can do this because we are located in the heart of the lumber district and get our power from the well-known Falls of St. Anthony. Our catalog is a valuable book as it is full of information for the bee-keeper not usually found in a catalog. Write for it to-day.

Minnesota Bee Supply Co.,
20 Power Building, Minneapolis, Minn.



Everything for the Bee Keeper

will be found in our Illustrated Catalogue No. 40. It contains a full line of Hives, Supers, Followers, Sections, Section Holders, Frames, Extractors, Smokers, etc. All these and many other essentials are manufactured by us. Everything is guaranteed to be right and of best quality. Our prices are so reasonable that any bee keeper may afford the best supplies.

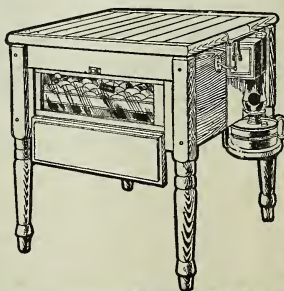
We cannot tell you here of all the good things in this book.

Better send for a copy today. We mail it free, together with a copy of the **Progressive Bee Keeper**, a splendid monthly publication devoted to bee interests. It will help you start right and keep you right after you are started. It is invaluable as an aid to every bee keeper. Ask for the paper and the book.

We Sell the Best Incubators and Brooders.

Delivered at your station, prices the lowest. Write us at once and save money. Address

LEAHY MFG. CO., 15 Talmage St., Higginsville, Mo.
 Branches at Omaha, Neb. and East St. Louis, Ill.



Bees, Queens, and Bee Supplies.

We manufacture standard dovetailed bee-hives and supplies cheaper than you ever bought before. Our queens and bees stand at the head in quality. Untested, 75c each; \$4.25 for 6, or \$8.00 per dozen. Tested, \$1.25 each; \$12.00 per dozen. Select tested, \$1.50 each. Special prices to dealers in large lots on application. State agents for Dittmer's foundation. Catalog free.

THE BEE AND HONEY CO.,

Will Atchley, Prop Beeville, Bee Co., Texas,

If You Want Root's Goods

I have them at Root's prices. Also A B C of Bee Culture—one of the best books printed on bees. Catalog free. Address as below.

D. Cooley, Kendall, Michigan

Queens.

Quirin-the-Queen-Breeder

is, as usual, again on hand with his SUPERIOR IMPROVED strain of ITALIAN BEES and queens. The editor of GLEANINGS, in observing the handling of our bees last fall, remarked that "such stock is in great demand." Years ago we used to be obliged to buy bees each spring to keep us agoing; but now we sell perhaps a carload each season; get tons of honey, and raise thousands of queens. We have bred our bees for business; they have no superior either side of the ocean. For a dozen testimonials see our full-page adv't in the Dec. 15th number of GLEANINGS, or ask for circulars.

Prices of Queens before July 1	1	6	12
Select queens.....	\$1 00	\$5 00	\$ 9 00
Tested queens.....	1 50	8 00	15 00
Select tested queens.....	2 00	10 00	18 00
Breeders.....	4 00		
Golden five-band breeders.....	6 00		
Two-comb nuclei, no queen.....	2 50	14 00	25 00
Full colonies on eight frames.....	6 00	30 00	

Add the price of whatever grade of queen is wanted, with nuclei or colonies, queens ready in April, nuclei about May 10; can furnish bees on Danzenbaker or L. frames; pure mating and safe arrival guaranteed. We employ 400 to 500 swarms in queen-rearing, and expect to keep 500 to 1000 queens on hand ready to mail. Our Northern-bred bees are hardy, yet gentle; they will give you results. Address all orders to

Quirin-the-Queen-Breeder, Bellevue, Ohio

Tennessee-bred Queens

From Extra Select Mothers

Three-band from dark leather imported; Moore's long tongue or my own; Golden from Laws, Doolittle's, or my own; Caucasians and Carniolans from direct imported. No disease. Contracts with dealers a specialty. Apiaries from 3/4 to 7 miles apart. Write name on postal, and get circular and what others say.

JOHN M. DAVIS
Spring Hill, Tennessee, U. S. A.

California Sage Queens

For the coming season I am breeding choice Italian queens from best honey-gathering strains of bees that are hustlers. No disease of any kind has ever been in or near my apiary. Prices: Choice untested, \$1.00; six, \$5.00; dozen, \$9.00. Tested, \$1.50; six, \$8.00. No small or inferior queens sent out.

J. W. GRIFFIN
528 Gladys Av., Los Angeles, Cal.

TAYLOR'S ITALIAN QUEENS FOR 1906

Leather-colored and golden Italians. I have made it a specialty for 18 years to breed for the best honey-gatherers of these races, and I have not been able to get any other stock that will store as much honey as my strains, gentle and beauties. Untested, 75 cts. each; \$3.00 per dozen. Tested, \$1.00, or \$11.00 a dozen. Selected tested, \$1.50. Breeders, \$3.00 to \$5.00 each. I guarantee safe arrival on all queens. Untested Caucasians, queens, \$1.00 each. Send your orders to

♥ ♥ **J. W. Taylor, Beeville, Texas**

Extra Honey Queens

I am offering to the honey-producers this year some of the best Italian stock in Southern California. These bees are not only extraordinary honey-gatherers, but are also gentle, and build very little brace or burr comb. They will bring in sage honey long after other stock has stopped working on sage and gone to work on sumac. They are, in fact, a good bee, and one which I unreservedly guarantee. I sell only one grade—select untested—as I do not sell any queen which is not select.

Prices

One.....\$1.00 Six.....\$5.00 Twelve..\$9.00

Francis J. Colahan
Bernardo, San Diego Co., Calif.

COLLINGDALE APIARY

J. R. Rambo, Collingdale, Delaware Co., Penn.

Breeder of Caucasian and Golden Italian queens; Italians bred from stock received from Swarthmore; Caucasians bred from an imported queen. Queens reared and mated in separate yards, six miles apart. Satisfaction and safe arrival guaranteed. Prices furnished on application. I am booking orders now for the coming season, and will fill same in rotation as received.

Yellow from Tip to Tip!!!

My Adel bees and queens are yellow all over. Every queen a breeder, and guaranteed to produce all golden queens and bees. \$1 each. Catalog ready. **H. Alley, Wenham, Mass.**

WE ARE HEADQUARTERS FOR THE ALBINO BEES,

the best in the world. If you are looking for the bee that will gather the most honey, and is the gentlest of all bees in handling, buy the Albino. I also furnish the Italian, but orders stand fifty to one in favor of the Albino.

Prices: Select tested Albino queens for breeding, \$4.00; tested Albino queens as they run, \$2.50; untested, \$1.00. Italians, tested, \$1.50; untested, \$1.00.

S. VALENTINE,

Rocky Ridge, - Frederick Co. - Md.

It won't Pay You

to keep those poor colonies when young vigorous queens given to them now will increase your honey crop many times. Italian queens only. I rear my queens carefully, guarantee them good and purely mated, or replaced free on notice. You will find my queens will give you satisfaction. No bee disease here. Prices: Untested, \$1.00; six, \$4.50; dozen, \$8.00; tested, \$1.50; six, \$8.00; dozen, \$14.50; breeders, \$5.00. For larger quantities write for prices.

M. D. WHITCHER, Los Olivos, Cal.

Quality Queens

Are the Best Italians yet.

Send for circular. ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀

H. H. JEPSON,

182 Friend St., - Boston, Mass.

GEORGIA QUEENS.

Standard breed, from our superior golden leather-colored Italians, gray Carniolans. Untested, \$1.00; 6, \$5.00; 12, \$9.00; tested, \$1.50; select, \$2.50; best, \$5.00. For bees, see free circular.

T. S. HALL, Jasper, Pickins Co., Ga.

GOLDEN ITALIAN QUEENS.

Untested, ready to mail. Select, \$1.00; six for \$4.50. Same old place, same treatment. Write for circular.

J. B. Case, Port, Orange, Fla.

QUEENS FOR SALE.

Golden and three banded Italians, untested, 75c; tested, \$1.50. Hardy and healthy. Orders booked now. Write for circular. **Mennie & Fenton,** Pine Island, Minn.

Great Sale of Hives Sections, etc.

To reduce my stock I will sell No. 1 white polished sections at \$3.90; No. 2, \$3.40 (all sizes). Plain, 25c less per 1000. Best white-pine Dovetail hives, 8-frame, 1½ story, \$1.30; 10-frame, \$1.45. Great reduction in smokers, foundation, and all apianary supplies. 24-lb. shipping-cases, very nice, 13c; quart berry-baskets, \$2.75 per 1000. Send for free 24-page illustrated price list

W. D. Soper, Jackson, Mich. RD3.

A. H. Reeves, Perch River, Jefferson Co., N. Y.

DISTRIBUTOR OF ROOT'S GOODS FOR

NORTHERN NEW YORK BEESWAX WANTED

Something New in Honey-jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest 1-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements. . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail.



SEND 10 CENTS

for this beautiful Wild Rose Centerpiece and receive free one large doily, one small doily, one book-mark, one postage-stamp case, one pin-tray cover, and our catalog of nice things for nice people.

Mason Supply Co.
Mechanic Falls, Me.

HANDS UP!

Or Confess You Never Saw It.

A dandelion and weed puller that can be used by women and children as well as by men. You do not have to bend; you do not have to stoop; you do not soil your fingers, as the instrument delivers automatically. You do not "puff nor grunt," for it's a pastime and not labor to pull dandelions even at the RATE OF ONE THOUSAND an hour. Not a drop of dirt, nor a mark left on the lawn. Free delivery in your hand on receipt of ONE DOLLAR.

The Standard Incubator Co., Ponca, Neb.

Are you interested in the great and growing South? If so, send 25 cents in stamps or silver and receive the Alabama Times one year.

THE ALABAMA TIMES

is a large eight-page paper, and is published weekly. It will tell you all about the South. Send in your subscription to-day. Address

THE ALABAMA TIMES, Montgomery, Ala.

Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it 6 months on trial. Sample free. **The Southern Fruit Grower,** Box 1. Chattanooga, Tenn.

CARNIOLANS OUR SPECIALTY

WE HAVE bred this race of bees for twenty years, and find they are among the gentlest bees known. Very hardy and prolific, and the best of honey-gatherers, and their combs are of snowy whiteness. We are wintering fifty select imported and two hundred best select tested Carniolan queens for early orders. Also breeders of Golden and Leather Italians. One untested queen, \$1.00; six for \$5.00; twelve for \$9.00. Tested, \$1.50. Best breeder, \$3.00. Best imported, \$5.00. Special prices on large orders. No foul brood here. Bees and queens guaranteed to arrive in good condition in U. S. or Canada. Descriptive list free.

F. A. Lockhart & Co.—Last Friday I was in the New York office of The A. I. Root Co., and saw a three-frame nucleus of Carniolan bees with queen, which they had just received from you. They were the finest Carniolans I ever saw, entirely free from any trace of yellow markings, and I at once bought them, though the Root people were not very anxious to sell them. I am writing you to-day to ask if you can ship me at once a three-frame nucleus of Carniolans with plenty of drone brood. Send by express to me at Columbia University.

J. H. MCGREGOR,
Department of Zoology, Columbia University,
June 17, 1905. New York.

F. A. Lockhart & Co., Lake George, New York

SWARTHMORE

HAS made arrangements to import Select Caucasian Breeding Queens from their native land in Russia, to be mailed direct to customers in sealed cages (which assures them genuine), \$10.00 each in May; \$8.00 in June. Safe arrival guaranteed. Italian, Carniolan, Banat, Cyprian, German Black, and the "funny little bees" from Japan, also direct to customers from their native lands. Home-bred Golden-all-over Queens as usual. Send for circulars.

1000 Nuclei E. L. PRATT, SWARTHMORE, PENN. Four Mating-yards

DOOLITTLE & CLARK

are booking orders for their famous Italian queens. Now is the time to order breeders. Send for circular.

Grade.	One	Three	Twelve
Untested	\$1.00	\$2.50	\$9.00
Select Tested	1.50	4.00	14.00
Tested (1905 rearing)	2.50		
Select Breeding	5.00		
Extra Select Breeding	10.00		
Two-frame Nuclei	2.50	7.00	25.00

DOOLITTLE & CLARK
Borodino, Onondaga Co., New York

Rose Lawn Queens

Italians Caucasians Carniolans

Bred in the purple. No finer on earth. Try one of our pure Gold strain, line bred for color and gentleness. Three banders of the "pat-em-on-the-back" kind that will eat out of your hand. Caucasians from imported breeders direct from the Caucasus. Separate mating yards. A strictly modern plant. Standard prices and honest treatment. Ask for our catalog.

Rose Lawn Apiary, Lincoln, Nebraska

Frank G. Odell, Proprietor

Now Ready, Italian and Red-Clover Queens

I guarantee safe arrival and perfect satisfaction. Untested, 60 cts.; select untested, 75 cts., or \$3.00 per dozen. Tested, \$1.00, or \$10.00 per dozen. Breeders, \$1.50 each.

R. O. COX,
Rt. 4. Greenville, Ala.

QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. OUR MOTTO—"Whatsoever ye would that men should do to you, do ye even so to them."

MALAN BROTHERS, Luserna, San Giovanni, Italy.

Every Bee - Keeper Knows the Worth of a Good Queen

Knows the worth of a good strain of bees, and also knows how worthless is a poor queen and inferior bees. Try our strain of three-banded Italians. They are bred for business, and will not disappoint you. Home-bred and imported mothers. Tested, \$1.00 each; untested, 75 cts. each; \$3.00 per dozen. Send for price list.

J. W. K. SHAW & CO.

Loreauville, : : : Louisiana



RED-CLOVER QUEENS AND ITALIANS BETTER THAN EVER.

Average queen, 75 cts. Untested, \$1.00; tested, \$1.25. Guaranteed to work red clover.

"Our red-clover fields are swarming with your bees," says G. W. Slaybaugh, York Springs, Pa.

Send for my new circular; it's free. Root's Bee Supplies for sale. G. ROUTZAHN, Biglerville, Pa.

QUEENS.

Italian, Carniolan, and Carni-Italian Cross.

Can supply select untested queens at 75c each; three for \$2.00; six for \$3.50. I am now booking orders for early delivery.

George W. Barnes,

138N. Pleasant St.

Norwalk, Ohio.

Do You Want to Improve Your Stock?

Are your bees cross? Do they make a good surplus? Do you want a nice queen—one that will please? If so, write for circular

A. W. Yates 3 Chapman St., Hartford, Connecticut

Now is the Time to Plan

for the coming season, and you are bound to need queens to replace those that are old and worn out. Many of my customers have written me that the queens bought of me were the only ones that gave any surplus the past poor season. You had better plan to supply yourself with a lot of those fine young queens from the Laws apiaries, and double your crop of honey.

I AM BREEDING THE LEATHER AND GOLDEN ITALIANS,

also the Holy Lands. So many calls have come for Carniolans that I have added this splendid race to my list, and there is no doubt that the Carniolan, or the Carni-Italian cross, will cap their honey whiter than any of the Eastern races. I am not only prepared to furnish you with the best bees and queens in existence, but in any quantities, large or small, from one to a thousand queens. Nuclei and full colonies in season. I also offer another car of bees the coming season.

PRICES: Queens, each, \$1.00; six for \$5.00. Breeders, each, \$3.00. Write for quantity lots.

W. H. LAWS, BEEVILLE, BEE CO., TEXAS.

Caucasian - and - Italian - Queens

from California

Prices: CAUCASIAN—One tested, \$3.00; one best breeding, \$6.00; one imported from Caucasus, \$7.00. ITALIAN—One untested, \$1.00, six for \$5.50, 12 for \$10.00; one tested, \$1.50; one best breeding, \$5.00. Caucasians bred from the best imported breeding queens. Italians bred from breeding queens we procure from principal breeders of this country who have the best honey-gatherers. Nuclei and full colonies of bees. Send for particulars, and see our adv. in GLEANINGS, February 1st.

A. E. Titoff, Ioamosa, San Bernardino Co., California

CAUCASIAN QUEENS!

For beginners, the timid, and the city bee-keeper. Not stingless, but gentle. With this race many will master the art of handling bees. I breed HIGH-GRADE ITALIAN QUEENS also. The demand for these queens is great; the supply is limited. Write for particulars today. Address

Robert B. McCain, Yorkville, Ills. R. F. D.

Our Queens Won't Cost You Money!

They Will Save It!

They are bred from pure Italian stock, red-clover strain; hardy Northern grown. Prompt shipments at these prices:

Untested.....\$1.00; \$5.00 for six

Select tested.....1.50; \$7.50 for six

For prices in larger numbers and breeders write us.

Orders for delivery after May 15th now being booked.

Get your order in early.

Handsome booklet mailed free upon request.

B. C. Terry Co., Hinsdale, Ill.

Superior Stock

I make a specialty of long-tongue
Italian, Carniolan, and Caucasian,

Rearing only from best stock obtainable. My Italian queens are unexcelled; my Carniolans and Caucasians from best imported queens. All races bred in separate yards to insure purity. A postal will bring my price list for 1906.

CHARLES KOEPPEN

Fredericksburg, Va.

PURE ITALIAN BEES!

The most beautiful, gentle, prolific, best working, and being long-tongued, best honey-gatherers. **Prizes**—VI. Swiss Agricultural Exhibition, Berne, 1895; Swiss National Exhibition, Geneva, 1896; Bee-keeping Exposition, Liege, Belgium, 1895; Universal Exposition, St. Louis, U. S. A., 1904. **The Highest Award.** Extra select breeding Queen, \$3.00; six, \$16.00; dozen, \$30.00. Selected Queen, \$2.00; six, \$11.00; dozen, \$20.00. Young fertilized queen, tested, \$1.50; six, \$9.00; dozen, \$16.00. Special prices for 50 and 100 queens. The addresses must be clear; payments by postal money orders. If by chance a queen dies upon the journey she is to be returned immediately, with a postal certificate, and another queen will be sent gratis. Address

Anthony Biaggi,

Pedeville, near Bellinzona, Italian Switzerland. This country is politically the Switzerland Republic, but lies geographically in Italy, and possesses the best kind of bees known. Bee-keepers of the *Far West* can give their orders to my brother Stefano (Stephen) Biaggi, farmer, resident at Wash, Plumas Co., California, who will kindly collect orders. In writing, mention GLEANINGS.

Italian and Caucasian Queens and Bees



Choice homebred and imported stock. All queens reared in full colonies.

PRICES FOR APRIL ITALIANS

One tested queen.....\$1.65
One select tested.....2.20
One breeder queen.....3.30
One comb nucleus, no queen... 1.50

Untested queens in May. Safe arrival guaranteed. For prices on quantities, and description of each grade, send for free catalog.

J. L. Strong, Clarinda, Iowa, U. S. A.

204 East Logan Street

1906 Italian and Caucasian Queens. Price list now ready. Write E. E. LAWRENCE, Doniphan, Mo.

BEES and QUEENS

The Three-banded Long-tongued Strain of Italians.

We are breeding exclusively the above strain of bees, as from years of experience we consider them the best all-round bees that can be had. We have been making, from time to time, very careful selections for the following

Superior Qualities.

Honey-gathering, size of bees, non-swarming, docility, uniform markings.

Our selection of bees awarded diploma at the PAN-AMERICAN EXPOSITION for being the best bees there. And we guarantee them the equal of any bees anywhere at any price.

Quality Our Motto.

1300 colonies to select from.

Untested queens.....\$1.00; 6, \$5.00; 12, \$ 9.00
Select untested queens..... 1.25; 6, 6.00; 12, 11.00
Tested queens..... 1.50; 6, 8.00; 12, 15.00
Select tested queens..... 2.00; 6, 11.00.
Breeding queens, \$3.00 to \$5.00.

Yours for best service,

The Victor-Knolle Apiary Co.,
Hondo, Texas.

Red-clover Queens from Westwood Apiary

will convince you of their superiority over all others. One, two, and three frame nuclei a specialty; also full colonies. Price list sent on application.

Henry Shaffer Westwood, Ohio

MOORE'S LONG-TONGUES and GOLDENS

Select untested queens, \$1.00; six, \$5.00; twelve, \$9.00. Tested, \$1.50; six, \$8.00. Best breeders, \$3.50. Safe arrival guaranteed.

W. H. Rails, - - - Orange, Calif.

H. C. Simpson, Catawba, S. C.

Dealer in

BEE - KEEPERS' SUPPLIES!

Breeder of Italian bees and queens.
Root's Goods a specialty.

ITALIAN QUEENS AND GLEANINGS.

For \$1.10 I will send GLEANINGS one year, new or renewal, and give one of my choice untested Red-clover Queens. Queens sent after May 1st.

W. T. CRAWFORD, Hinston, La.

IMPORTED - CAUCASIAN - QUEENS

are the mothers of my stock. Prices: Tested queens, \$3.00; untested, \$1.50; red-clover Italians, Carniolans, and Carnio-Italians bred from best stock obtainable. Prices: Tested queens, each \$1.50; warranted, each \$1.00; untested, 6 for \$5.00; untested, 12 for \$9.00. After May 15, by return mail. Satisfaction guaranteed

Rev. J. G. Baumgaertner, New Memphis, Ill.

CARNIOLAN and ITALIAN QUEENS!

Ready to mail by April 15th. Quality of the highest, prices the lowest. Write me.

Grant Anderson - Sabinal, Texas

Aliso Apiary

For queens, bees, nuclei, supplies, etc., send for price list.
Root's standard goods. Address

ALISO APIARY, El Toro, Orange Co., Calif.

From Long-tongued Imported Italians.

Trial queen, 60c; only one at this price. Untested, 75c; \$7.50 per doz. Tested, \$1.25; \$12.00 per doz. Breeders, \$2.00 to \$3.00. Send for particulars.

E. E. MOTT, Glenwood, Mich.

Boston Headquarters — FOR — Bees-Queens-Supplies

H. H. Jepson - 182 Friend St.

Italian Queens of - the - Purest - Strains

I offer this race of queens, bred from select red-clover and five-banded breeders, at the following prices:

Untested, 75c; select untested, \$1.00; tested, \$1.50; select tested, \$2.50. I will guarantee safe arrival and satisfaction.

H. M. PARKER, Jr.

James Island, South Carolina

Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,

Box 18, Beeville, Bee Co., Tex.

Queens! Select three or five banded, \$1.00; tested three or five banded, \$1.25. Ready for delivery April 1st. Write for circular. Daniel Wurth, 1111 No. Smith Street, San Antonio, Texas

Italian and Caucasian Queens

ITALIANS.—Golden or leather-colored or honey queens. Before July 1st: Untested, \$1.00 each; 6 for \$5.00; 12 for \$9.00. Warranted, \$1.25 each; 6 for \$7.00; 12 for \$13.00. Tested, \$1.50 each.

CAUCASIANS.—Untested, \$1.20 each; 6 for \$7.00; 12 for \$11.00. Warranted tested, \$1.50 each.

TWO-FRAME NUCLEI.—No queens, \$2.50; 6 for \$14.00; 12 for \$27.00. Add price of any queen wanted. Nuclei ready by June 1st. Queens ready in May. Breeders from \$5.00 to \$10.00. Book your order now. Safe arrival of all stock guaranteed.

D. J. Blocher, Pearl City, Illinois

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Carload of bees in Wisconsin.

O. S. LUNDE, Wausau, Wis.

WANTED.—Hives of bees. Write us full particulars. We pay cash.

Vinemont Apiary, Marshfield Hills, Mass.

WANTED.—Second hand typewriter, Oliver preferred, for bees or supplies.

Bee Man," Williamsport, Pa.

WANTED.—To exchange typewriter for three-frame nuclei or queen bees to be delivered before May 10.

WM. DAVENPORT, Wilmette, Ill.

WANTED.—Good colonies of bees for cash. State price and quantity.

F. H. FARMER, 15 Chardon St., Boston, Mass.

WANTED.—To exchange Planet Jr. seed and fertilizer drill, for honey-extractor.

SEWARD STEFFY, Glouster, Ohio.

WANTED.—To exchange 50 Col. graphophone outfit for full colonies or nuclei. It is in fine shape.

F. W. SAMPSON, Littleville, Mass.

WANTED.—To exchange my cameras, lenses, printing-frames, burnisher, and entire outfit, for something useful.

W. S. BRILLHART, Oakwood, Ohio.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.

OREL I. HERSHISER,

301 Huntington Ave., Buffalo, N. Y.

WANTED.—Address of T. B. Crayton, by a brother who has not seen him for 23 years. Last known of in Indiana. Any one giving address or clue will confer a favor on a bee-keeper.

W. E. CRAYTON, Lima, O.

WANTED.—For delivery by May 1st six five-banded golden breeding queens, for a special customer. These must be extra-fine breeding stock, golden to the tip. Mention price and full particulars.

THE A. I. ROOT CO., Medina, Ohio.

WANTED.—To exchange 500 chaff hives, also Carniolan queens, for honey (hives in flat). Both are as good as can be produced. I have a good market for best quality of white-clover honey and a little buckwheat, but can not raise profitably. Will allow Chicago price for honey. No poor grades of honey wanted.

W. W. CRIM, Pekin, Ind.

WANTED.—Bees to work on shares. I have as good a location, I think, as can be found in the States; two good flows in one season. My crop last year was 16,000 lbs. from 135 colonies. If your bees are not paying you, write me and I will work them for you and give you half the profits. I have a good cellar for wintering. Can move your bees successfully if you are at a distance. Can refer you to the banks here, any business house in town, or The A. I. Root Co.

F. W. MANLEY, Sandusky, Mich.

Help Wanted.

WANTED.—Young man to help in large apiaries, and do some general work around home. Experience in bee-keeping not necessary. No one wanted who uses intoxicating liquor, tobacco, or profane language.

J. A. GREEN, Grand Junction, Colo.

WANTED.—Young man who has had some experience with bees to work in apiary and do some other general work.

E. W. ALEXANDER, Delanson, N. Y.

WANTED.—Nurses. The Western Pennsylvania Hospital and Eye and Ear Hospital offer exceptional advantages for training. References required. Apply Superintendent's Office, 1945 Fifth Av., Pittsburgh, Pa.

WANTED.—Man to take charge of an apiary of 150 colonies in western Colorado. Will work on shares or make satisfactory agreement with experienced man.

BENJ. HAMMAR, Rifle, Colo.

WANTED.—Man to work with bees. State age, experience, and wages desired. An opportunity for the right man to secure a steady situation.

W. HICKOX, Berthoud, Colo.

Wanted, Situations.

WANTED.—Situation by a young man of steady habits to learn bee-keeping.

E. L. ARMSTRONG, Harrodsburg, Ky.

WANTED.—By young man with 1 year's experience in large apiary, situation for the coming season. Southeast preferred.

Address C. E. THOMAS,
251 65th Pl., Chicago, Ill.

WANTED.—From June 1, employment the year round in California or Florida by colored West Indian, 30 years old. Ten years' experience in tropical bee-keeping. Gold Medalist (for honey). Expert queen-breeder. Can do other work. Useful man. Best references. State pay in first letter to "WORKER," care of GLEANINGS, Medina, Ohio, and wait a few weeks for reply.

For Sale.

FOR SALE.—Twelve varieties of double dahlias, at \$1.00 a dozen.

MRS. J. W. BACON, Waterloo, N. Y.

FOR SALE.—My entire bee-keepers' supply business. All inquiries answered.

C. J. LAMB, East Calais, Vt.

FOR SALE.—Good typewriter, also Water Spaniel dogs and pups.

G. C. DEAN, New Milford, Pa.

FOR SALE.—Bee-keepers' supplies. Root's goods. Root's prices. Free catalog.

F. R. DANIELS,
117 Florence St., Springfield, Mass.

FOR SALE.—Best land for bee-keepers, farmers, dairymen. Cheap. Write us.

WRIGHT-ROBINSON, Cumberland, Wis.

FOR SALE.—25 colonies Italian bees in 8-frame L. hives, Hoffman frames. \$4.00 each.

F. P. CATHERMAN, Lewisburg, Pa.

FOR SALE.—Root's bee-supplies at factory prices; full colonies Italian bees; queens in season (catalog free); Plymouth Rock chickens and eggs; incubators, brooders, poultry food, etc.

H. S. DUBY, St. Anne, Ill.

FOR SALE.—Trees by mail; one-year-old peach and apple trees, 10c each; \$1.00 per dozen. Guaranteed true to name and free from disease.

G. A. HAFER, Batchtown, Ill.

FOR SALE.—About 300 sixty-pound cans; mostly new, good condition, new cases, two cans to a case; 40 cts. per case, f. o. b. Preston.

M. V. FACEY, Preston, Fillmore Co, Minn.

FOR SALE.—Bees from my great-grandfather's stock. He called them yellow because they are not as black as some bees. They are gentle, and hustlers; good honey-gatherers. Six stands of these bees for \$4.00 each; two-frame nucleus and old queen, \$2.25; queens, 35 cts. each.

G. W. KELLER, King's Creek, N. C.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to
FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Bees; the right kind, right prices. Safe arrival and satisfaction guaranteed. Ask for illustrated Outfits for Beginners, price list, and our hints on buying bees. MASON SUPPLY CO., Mechanic Fs., Me.

FOR SALE.—100 eight-frame hives of Italian bees after May 10. Will ship in light shipping-cases or 4 hives as desired; \$3.00 per hive; 25 at \$2.75 each; the whole lot at \$2.50 each.

F. C. MORROW, Wallaceburg, Ark.

FOR SALE.—A lot of queens, all ages and all kinds, taken from bees bought up, 20 cts. each. Only those with a fair amount of brood offered.

W. W. CRIM, Pekin, Ind.

FOR SALE.—Best S. C. Brown Leghorn and Barred Plymouth Rock eggs \$1.50, and finest Southern Pit Game eggs \$2.00 for 15 eggs. Illustrated circular free.

H. B. Geer, Nashville, Tenn.

FOR SALE.—Barred Rock eggs to set, from America's best strains; \$3.00 per 13; from best pens only. Eggs for incubator use from range flock, \$6.00 per hundred.

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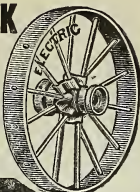
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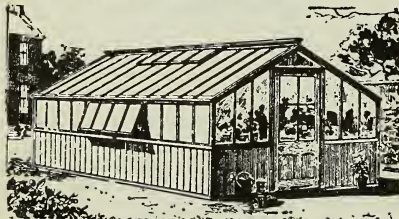


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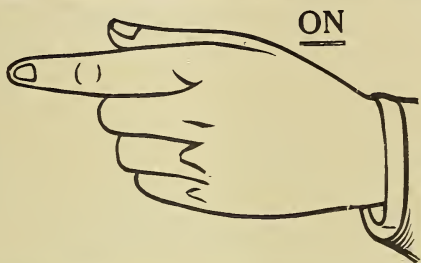
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